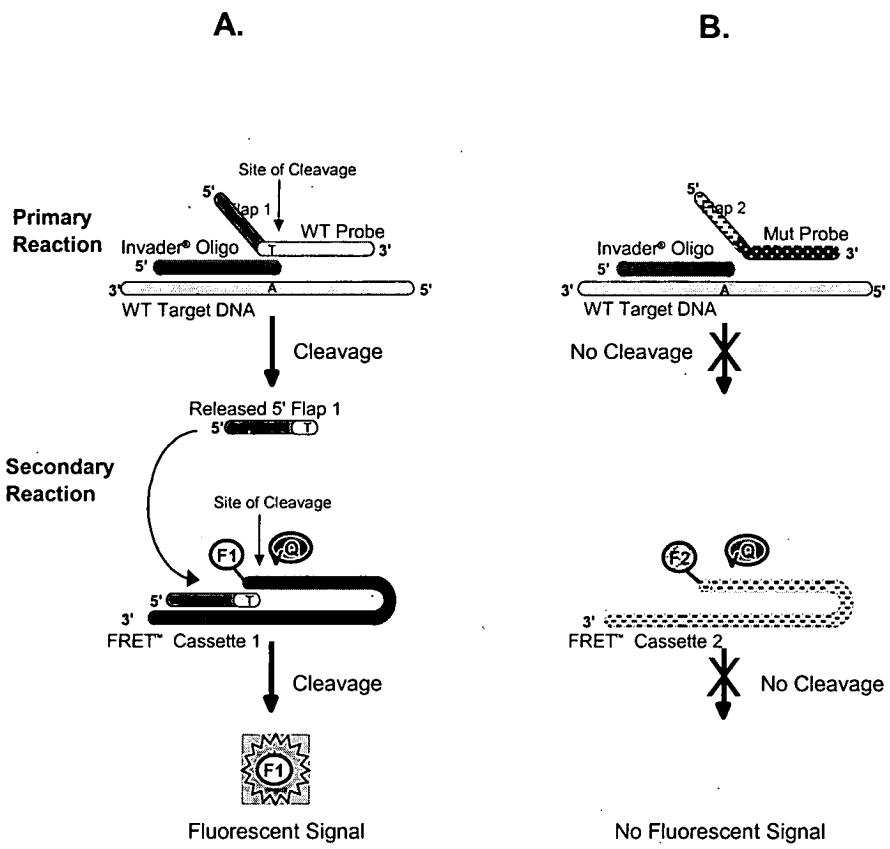

A.
B.
Primary Reaction
Site of Cleavage
5'
Flap 1
WT Probe
Invader® Oligo
T
3'
5'
3'
A
5'
WT Target DNA
Cleavage
Released 5' Flap 1
5'
T
Secondary Reaction
Site of Cleavage
F1
Q
5'
T
3'
FRET™ Cassette 1
Cleavage
F1
Fluorescent Signal
5'
Flap 2
Mut Probe
Invader® Oligo
3'
5'
3'
A
5'
WT Target DNA
No Cleavage
F2
Q
3'
FRET™ Cassette 2
No Cleavage
No Fluorescent Signal

Fig. 1

Figure 2

SEQ ID NO	Mutation	Exemplary Pool	3' blocking group	Oligo type (Arm)	Sequence (5'-3')	ε_{260} M^{-1} cm^{-1}
SEQ ID NO: 296	2789+5G>A	1	none	invader	TTTGGTTGTGCTGTGGCTCCTTGGAAAGTGAT	330800
SEQ ID NO: 297	2789+5G>A	1	hex	probe/DM	CGCGCCGAGGATATTCCATGTCCTATTGTG	306500
SEQ ID NO: 298	2789+5G>A	1	none	synthetic target	CAATCTACACAATAGGACATGGAATATTCACTTTCCAAGGAGCCACAGCACAACCAAA	667000
SEQ ID NO: 299	R1162X	1	none	invader	GTTTACCTTCTGTTGGCATGTCAATGAACTTAAAGACTCT	428000
SEQ ID NO: 300	R1162X	1	hex	probe/DM	CGCGCCGAGGAGCTCACAGATCGC	253000
SEQ ID NO: 301	R1162X	1	none	synthetic target	TCAGATGCGATCTGTGAGCTGAGTCTTTAAGTTCATTGACATGCCAACAGAAGGTAAAC	659000
SEQ ID NO: 302	R347P	4	none	invader	CAGGGAAATTGCCGAGTGACCGCCATGT	306600
SEQ ID NO: 303	R347P	4	hex	probe/ER24	ACGGACGCGGAGGGCAGAACAATGCAG	318200
SEQ ID NO: 304	R347P	4	none	synthetic target	CTCATTCTGCATTGTTCTGCCCATGGCGGTCACTCGGCAATTTCCCTGGG	488000
SEQ ID NO: 305	1898+1G>A	1	none	invader	GACTCTCCTTTTGGATACCTAGATGTTTTAACAGAAAAAGAAATATTTGAAAGT	619900
SEQ ID NO: 306	1898+1G>A	1	hex	probe/DM	CGCGCCGAGGATATGTTCTTTGAATACCTTACTTAT	386500
SEQ ID NO: 307	1898+1G>A	1	none	synthetic target	ATAAGTAAGGTATTCAAAGAACATATCTTTCAAATATTTCTTTTTCTGTTAAAACATCTAGGTATCCAAAAGGAGAGTC	904800
SEQ ID NO: 308	2184delA	4	none	invader	CCCCAAACTCTCCAGTCTGTTTAAAAGATTATTTTTTC	393000
SEQ ID NO: 309	2184delA	4	hex	probe/DM	CGCGCCGAGGGTTTCTGTCCAGGAGACA	305200
SEQ ID NO: 310	delI507	1	none	invader	GCTTTGATGACGCTTCTGTATCTATATTCATCATAGGAAACACCAAT	509300
SEQ ID NO: 311	delI507	1	hex	probe/DM	CGCGCCGAGGAGATATTTTCTTTAATGGTGCC	345200
SEQ ID NO: 312	delI507	1	none	synthetic target	GCCTGGCACCATTAAAGAAAATATCTTTGGTGTTTCCTATGATGAATATAGATACAGAAGCGTCATCAAAGCATGCC	866600
SEQ ID NO: 313	G85E	4	none	invader	GCCCTTCGGCGATGTTTTTTCTGGAGATTTATGTTCTATGT	409100
SEQ ID NO: 314	G85E	4	hex	probe/ER24	ACGGACGCGGAGAAATCTTTTTATATTTAGGGGTAAG	431700
SEQ ID NO: 315	G85E	4	none	synthetic target	AGATCCTTACCCCTAAATATAAAAAGATTTCATAGAACATAAATCTCCAGAAAAAACATCGCCGAAGGGCATTA	869300
SEQ ID NO: 316	R117H	3	none	invader	AATCATAGCTTCCTATGACCCGGATAACAAGGAGGAACT	443800
SEQ ID NO: 317	R117H	3	hex	probe/DM	CGCGCCGAGGACTCTATCGCGATTTATCT	304200
SEQ ID NO: 318	R117H	3	none	synthetic target	ATGCCTAGATAAATCGCGATAGAGTGTTCCTCCTTGTTATCCGGGTCATAGGAAGCTATGATT	681700
SEQ ID NO: 319	R560T	1	none	invader	CATGAATGACATTTACAGCAAATGCTTGCTAGACCAATAATTAGTTATTCACT	595000
SEQ ID NO: 320	R560T	1	hex	probe/ER24	ACGGACGCGGAGGTTGCTAAAGAAATTCTTGCT	378100
SEQ ID NO: 321	R560T	1	none	synthetic target	CAACGAGCAAGAATTTCTTTAGCAACGTGAATAACTAATTATTGGTCTAGCAAGCATTTGCTGTAAATGTCATTCATGTAAAA	945400
SEQ ID NO: 322	3120+1G>A	2	none	invader	GCAATTTTGGATGACCTTCTGCCTCTTACCATATTTGACTTCATCCAGT	496000
SEQ ID NO: 323	3120+1G>A	2	hex	probe/DM	CGCGCCGAGGATATGTAAAAATAAGTACCGTTAA	397500
SEQ ID NO: 324	3120+1G>A	2	none	synthetic target	AGACATACTTAACGGTACTTATTTTTACATATCTGGATGAAGTCAAATATGGTAAGAGGCAGAAGGTCATCCAAAATTGCTATATC	984000
SEQ ID NO: 325	3659delC	2	none	invader	GAGAGTTGGCCATTCTTGTATGGTTTGGTTGACTTT	372300
SEQ ID NO: 326	3659delC	2	hex	probe/DM	CGCGCCGAGGGTAGGTTTACCTTCTGTTGG	302800
SEQ ID NO: 327	3659delC	2	none	synthetic target	CATGCCAACAGAAGGTAAACCTACAAGTCAACCAAACCATACAAGAATGGCCAACTCTC	679800
SEQ ID NO: 328	A455E	1	none	invader	CCTGAAAGATATTAATTTCAAGATAGAAAGAGGACAGTTGTTGGT	531000
SEQ ID NO: 329	A455E	1	hex	probe/ER24	ACGGACGCGGAGAGGTTGCTGGATCCA	298100
SEQ ID NO: 330	A455E	1	none	synthetic target	CCAGTGGATCCAGCAACCTCCAACAACTGTCCTCTTTCTATCTTGAAATTAATATCTTTCAGG	661000
SEQ ID NO: 331	1078delT	2	none	invader	AGTGCATAGGGAAGCACAGATAAAAACACCACAT	413500
SEQ ID NO: 332	1078delT	2	hex	probe/DM	CGCGCCGAGGAGAACCCTGAGAAGAAGAA	355400
SEQ ID NO: 333	1078delT	2	none	synthetic target	AGCCTTCTTCTTCTCAGGGTTCTTGTGGTGTTTTTATCTGTGCTTCCCTATGCACT	533300
SEQ ID NO: 334	G551D	2	none	invader	GCAGAGAAAGACAATATAGTTCTTGGAGAAGGTGGAATCACACTGAGTGGAGT	628200
SEQ ID NO: 335	G551D	2	hex	probe/DM	CGCGCCGAGGATCAACGAGCAAGAATTTCT	343800
SEQ ID NO: 336	G551D	2	none	synthetic target	CTTGCTAAAGAAATTCTTGCTCGTTGATCTCCACTCAGTGTGATTCCACCTTCTCCAAGAACTATATTGTCTTTCTCTGCAAACTT	883100
SEQ ID NO: 337	I148T	1	none	invader	AAATCAAACTAAACATAGCTATTCTCATCTGCATTCCAT	432400
SEQ ID NO: 338	I148T	1	hex	probe/ER24	ACGGACGCGGAGGTGTGATGAAGGCCAAA	350200
SEQ ID NO: 339	I148T	1	none	synthetic target	CCATTTTTGGCCTTCATCACACTGGAATGCAGATGAGAATAGCTATGTTTAGTTTGATTT	643100
SEQ ID NO: 340	N1303K	2	none	invader	CCATATTTCTTGATCACTCCACTGTTCATAGGGATCCAAT	414700
SEQ ID NO: 341	N1303K	2	hex	probe/DM	CGCGCCGAGGCTTTTTTCTAAATGTTCCAGAAAAA	391200
SEQ ID NO: 342	N1303K	2	none	synthetic target	ATTTATTTTTTCTGGAACATTTAGAAAAAAGTTGGATCCCTATGAACAGTGGAGTGATCAAGAAATATGGAAAG	867100
SEQ ID NO: 343	711+1G>T	2	none	invader	GCCTTTCCAGTTGTATAATTTATAACAATAGTGCCTAAAAGATTAAATCAATAGGTACATT	
SEQ ID NO: 344	711+1G>T	2	hex	probe/DM	CGCGCCGAGGAATTCATCAAATTTGTTCAGGT	
SEQ ID NO: 345	711+1G>T	2	none	synthetic target	ACCTGAACAAATTTGATGAATTATGTACCTATTGATTTAATCTTTTAGGCACTATTGTTATAAATTATACAACTGGAAAGGC	927000
SEQ ID NO: 346	1717-1G>A	3	none	invader	GCCTTTCAAATTCAGATTGAGCATACTAAAAGTGACTCTCTAATTTTCTATTTTTGGTAATAT	685000
SEQ ID NO: 347	1717-1G>A	3	hex	probe/DM	CGCGCCGAGGAGACATCTCCAAGTTTGC	294500
SEQ ID NO: 348	1717-1G>A	3	none	synthetic target	CTCTGCAAACTTGGAGATGTCTTATTACCAAAAATAGAAAATTAGAGAGTCACTTTTAGTATGCTCAATCTGAATTTGAAAGGCACATC	1010000
SEQ ID NO: 349	W1282X	3	none	invader	GCTCACCTGTGGTATCACTCCAAAGGCTTTCCTA	345000
SEQ ID NO: 350	W1282X	3	hex	probe/DM	CGCGCCGAGGTCACTGTTGCAAAGTTATTG	327800
SEQ ID NO: 351	W1282X	3	none	synthetic target	GATTCAATAACTTTGCAACAGTGAAGGAAAGCCTTTGGAGTGATACCACAGGTGAGCAA	683000
SEQ ID NO: 352	3849+10kbC>T	2	none	invader	CAAGAGTCTTCCATCTGTTGCAGTATTAAAATGGA	390000
SEQ ID NO: 353	3849+10kbC>T	2	hex	probe/DM	CGCGCCGAGGTGAGTAAGACACCCTGAAA	327400
SEQ ID NO: 354	3849+10kbC>T	2	none	synthetic target	TTCCTTTCAGGGTGTCTTACTCACCATTTTAATACTGCAACAGATGGAAGACTCTTG	601000
SEQ ID NO: 355	R553X	4	none	invader	CATTTACAGCAAATGCTTGCTAGACCAATAATTAGTTATTCACCTTGCTAAAGAAATTCTTGCTG	
SEQ ID NO: 356	R553X	4	hex	probe/DM	CGCGCCGAGGCATTGACCTCCACTCAGT	

SEQ ID NO: 357	R553X	4	none	synthetic target	ACTGAGTGGAGGTCAATGAGCAAGAATTTCTTTAGCAAGGTGAATAACTAATTATTGGTCTAGCAAGCATTTGCTGTAAATG	
SEQ ID NO: 358	G542X	4	none	invader	TCCAAGTTTGCAGAGAAAGACAATATAGTTCTTTC	
SEQ ID NO: 359	G542X	4	hex	probe/DM	CGCGCCGAGGGAGAAGGTGGAATCACA	
SEQ ID NO: 360	G542X	4	none	synthetic target	TGTGATTCCACCTTCTCAAAGAACTATATTGTCTTTCTCTGCAAACTTGGA	
SEQ ID NO: 361	621+1G>T	3	none	invader	CCTTCATCACATTGGAATGCAGATGAGAATAGCTATGTTTAGTTTGATTTATAAGAAGC	664000
SEQ ID NO: 362	621+1G>T	3	hex	probe/DM	CGCGCCGAGGTTAATACTTCCTTGCACAGG	311900
SEQ ID NO: 363	621+1G>T	3	none	synthetic target	GGGGCCTGTGCAAGGAAGTATTAACTTCTTATAAATCAAACTAAACATAGCTATTCTCATCTGCATTCCAATGTGATGAAGGCCAA	965000
SEQ ID NO: 364	R334W	2	none	invader	CGCAGAACAATGCAGAATGAGATGGTGGTGAATATTTTCCT	467000
SEQ ID NO: 365	R334W	2	hex	probe/DM	CGCGCCGAGGAGAGGATGATTCCTTTGATTA	336800
SEQ ID NO: 366	R334W	2	none	synthetic target	TGCACTAATCAAAGGAATCATCCTCTGGAAAATATTCACCACCATCTCATTCTGCATTGTTCTGCG	703000
SEQ ID NO: 367	Internal control	all	none	Invader	tgtacttcatgctgtctacactaagagagaatgagagacacaca	503500
SEQ ID NO: 368	Internal control	all	hex	Probe/SNP4b	tccgcgcgtcctgaagaagcaccaatcatg	321200
SEQ ID NO: 369	Internal control	all	none	Synthetic Target	tttcatgattggtgcttcttcagtgtgtctctcattctctctagtgtagacagcatgaagtacattt	698200
SEQ ID NO: 370	FRET cassette	all	Hex	DM/FAM FRET	Y-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-ctc-ggc-gcg-hex	
SEQ ID NO: 371	FRET cassette	1, 2, 5	Hex	ER24/FAM FRET	Y-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-tcc-gcg-tcc-gt-hex	
SEQ ID NO: 372	FRET cassette	all	Hex	SNP4b/Red FRET	Y-tct-X-tcg-gcc-ttt-tgg-ccg-aga-gag-gac-gcg-cgg-a-hex	
SEQ ID NO: 373	delF508	delF508	none	Invader	TGATGACGCTTCTGTATCTATATTCATCATAGGAAACACA	441500
SEQ ID NO: 374	delF508	delF508	Hex	WT Probe	CGCGCCGAGGCAAAGATGATATTTTCTTTAATGGT	382200
SEQ ID NO: 375	delF508	delF508	Hex	Mut Probe	AGCTCGTCCGACACAATAATATTTTCTTTAATGGTGCCA	418100
SEQ ID NO: 376	delF508	delF508	Hex	DM/FAM FRET	Y-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-ctc-ggc-gcg-hex	347150
SEQ ID NO: 377	delF508	delF508	Hex	Wingra/Red FRET	Y-tct-X-tcg-gcc-ttt-tgg-ccg-aga-gat-gtc-gga-cga-gct-hex	390400
SEQ ID NO: 378	delF508	delF508	none	WT Target	TGCCTGGCACCATTAAAGAAAATATCATCTTTGGTGTTTCCTATGATGAATATAGATACAGAAGCGTCATCAAA	837500
SEQ ID NO: 379	delF508	delF508	none	Mut Target	ATGCCTGGCACCATTAAAGAAAATATCATTGGTGTTTCCTATGATGAATATAGATACAGAAGCGTCATCAAA	828100
SEQ ID NO: 380	2184delA	2184delA	none	invader	CTTCCTTTTTTCCCCAAACTCTCCAGTCTGTTTAAAAGATTGTTTA	
SEQ ID NO: 381	2184delA	2184delA	hex	MUT probe/DM	CGCGCCGAGGTTTGTTTCTGTCCAGGAG	
SEQ ID NO: 382	2184delA	2184delA	hex	WT probe/ER24	ACGGACGCGGAGTTTTGTTTCTGTCCAGGAG	
SEQ ID NO: 383				DM/FAM FRET	Y-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-ctc-ggc-gcg-hex	
SEQ ID NO: 384				ER24/RED FRET	Y-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-tcc-gcg-tcc-gt-hex	
SEQ ID NO: 385	3199del6	3199del6	none	WT synthetic target	AAATATGCTCTCAACATAATAAAAGCCACTATCACTGGCACTGTTGCAACAAAGATGTAGGGTTGTAA	
SEQ ID NO: 386	3199del6		none	MUT synthetic target	AAATATGCTCTCAACATAATAAAAGCCACTGGCACTGTTGCAACAAAGATGTAGGGTTGTAA	
SEQ ID NO: 387	3199del6		none	Invader	TGTCGCAGTTTTACAACCCTACATCTTTGTTGCAACAGTGCCT	
SEQ ID NO: 388	3199del6		hex	WT probe/ ER24	ACGGACGCGGAGAGTGATAGTGGCTTTTATTATGTT	
SEQ ID NO: 389	3199del6		hex	MUT probe/ ER38	AGGCCACGGACGAGTGGCTTTTATTATGTTGAGAG	
SEQ ID NO: 390			Hex	ER24/FAM	Y-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-tcc-gcg-tcc-gt-hex	
SEQ ID NO: 391			Hex	ER38/RED	5'-Y-TCT-X-TCG GCC TTT TGG CCG AGA GAC GTC CGT GGC CT-hexanediol -3'	
SEQ ID NO: 392	711+1G>T	2	hex	probe/ER24	ACGGACGCGGAGAATTCATCAAATTTGTTCAGG	
SEQ ID NO: 393	3849+10kb	2	hex	probe/ER24	ACGGACGCGGAGTGAGTAAGACACCCTGAAA	

X = Quencher = Z28
Y = Dye = FAM for DM and ER24 and Y = Z35 (or Redmond Red) for SNP4b
X = Quencher = Z28
Y = Dye = FAM for DM and Y = Z35 (or Redmond Red) for Wingra

Y = Dye = FAM for DM and Y = Z35 (or Redmond Red) for ER24
Y = Dye = FAM for ER24 and Y = Z35 (or Redmond Red) for ER38

FIGURE 3

SEQ ID NO	Mutation	Oligo Name	Oligo type	Sequence (5'-3')	ε260 M-1 cm-1	Length
SEQ ID NO:1	A455E	1297-83-03	Invader	CCTGAAAGATATTAATTTCAAGATAGAAAGAGGACAGTTGTTGGT	465900	45
SEQ ID NO:2	A455E	1657-96-01	WT ER38	AGGCCACGGACGCGGTTGCTGGATC-hex	235400	29
SEQ ID NO:3	A455E	1297-31-05	MT ER24	ACGGACGCGGAGAGGTTGCTGGATCCA-hex	266300	31
SEQ ID NO:4	A455E	1618-54-14	WT Syn Target (ST)	CCAGTGGATCCAGCAACCGCCAACAACTGTCCTCTTTCTATCTTGAAATTAATATCTTTCAGGT	600200	64
SEQ ID NO:5	A455E	1618-54-18	Mut Syn Target (ST)	CCAGTGGATCCAGCAACCTCCAACAACTGTCCTCTTTCTATCTTGAAATTAATATCTTTCAGGT	598800	64
SEQ ID NO:6	A455E	23-204	FAM FRET - WT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-gtc-cgt-ggc-ct-hex		
SEQ ID NO:7	A455E	23-755	Red FRETw/FAM Stem-MT	Z35-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-tcc-gcg-tcc-gt-hex		
SEQ ID NO:8	3659delC	1618-60-10	Invader	AGTTCATTGACATGCCAACAGAAGGTAAACCTAT	343500	34
SEQ ID NO:9	3659delC	1618-60-12	WT ER24	ACGGACGCGGAGCCAAGTCAACCAAACCA-hex	290200	33
SEQ ID NO:10	3659delC	1618-60-17	MT ER38	AGGCCACGGACGCAAGTCAACCAAACCATAC-hex	307600	35
SEQ ID NO:11	3659delC	1618-60-14	WT ST	TCTTGTATGGTTTGGTTGACTTGGTAGGTTTACCTTCTGTTGGCATGTCAATGAACT	531400	57
SEQ ID NO:12	3659delC	1618-60-18	MT ST	TCTTGTATGGTTTGGTTGACTTGTAGGTTTACCTTCTGTTGGCATGTCAATGAACT	521300	56
SEQ ID NO:13	3659delC	23-210	FAM FRET - WT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-tcc-gcg-tcc-gt-hex		
SEQ ID NO:14	3659delC	23-211	Red FRET - MT	Z35-tct-X-tcg-gcc-ttt-tgg-ccg-aga-gac-gtc-cgt-ggc-ct-hex		
SEQ ID NO:15	G85E	1614-57-10	Invader	GCCCTTCGGCGATGTTTTTTCTGGAGATTTATGTTCTATGT	374700	41
SEQ ID NO:16	G85E	1614-57-13	WT ER24	ACGGACGCGGAGGAATCTTTTTATATTTAGGGGTAAG-hex	372800	41
SEQ ID NO:17	G85E	1614-57-18	MT ER38	AGGCCACGGACGAAATCTTTTTATATTTAGGGGTAAGG-hex	381500	42
SEQ ID NO:18	G85E	1614-57-12	WT ST	AGATCCTTACCCCTAAATATAAAAAGATTCCATAGAACATAAATCTCCAGAAAAAACATCGCCGAAGGGCATT	742300	73
SEQ ID NO:19	G85E	1614-57-16	MT ST	AGATCCTTACCCCTAAATATAAAAAGATTTCATAGAACATAAATCTCCAGAAAAAACATCGCCGAAGGGCATT	743200	73
SEQ ID NO:20	G85E	1055-48-09	FAM FRET-WT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-tcc-gcg-tcc-gt-hex		
SEQ ID NO:21	G85E	1230-33-01	Red FRETw/FAM Stem-MT	Z35-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-gtc-cgt-ggc-ct-hex		
SEQ ID NO:22	N1303K	16145404	WT Probe ER24	ACGGACGCGGAGGTTTTTTCTAAATGTTCCAGAAAAA-hex	369300	41
SEQ ID NO:23	N1303K	16145406	MT Probe DM	CGCGCCGAGGCTTTTTTCTAAATGTTCCAGAAAAA-hex	334500	39
SEQ ID NO:24	N1303K	16145401	Invader	TTCTTGATCACTCCACTGTTCATAGGGATCCAAT	308600	34
SEQ ID NO:25	N1303K	16145403	WT ST	TTATTTTTTCTGGAACATTTAGAAAAAACTTGGATCCCTATGAACAGTGGAGTGATCAAGAAATT	650400	65
SEQ ID NO:26	N1303K	16145407	MT ST	TTATTTTTTCTGGAACATTTAGAAAAAAGTTGGATCCCTATGAACAGTGGAGTGATCAAGAAATT	654900	65
SEQ ID NO:27	N1303K	23-428	DM FAM FRET MT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-ctc-ggc-gcg-hex		53
SEQ ID NO:28	N1303K	23-394	ER24 RED FRET WT	Z35-tct-X-tcg-gcc-ttt-tgg-ccg-aga-gac-tcc-gcg-tcc-gt-hex		56
SEQ ID NO:29	D1270N	1645-18-10	Invader	TCAGCTTTTTTGAGACTACTGAACACTGAAGGAGAAATCCAGATCT	451000	46
SEQ ID NO:30	D1270N	1665-93-01	WT DM	CGCGCCGAGGGATGGTGTGTCTTGGGA-hex	257300	31
SEQ ID NO:31	D1270N	1645-18-17	MT Probe (ER24)	ACGGACGCGGAGAATGGTGTGTCTTGGG-hex	275600	32
SEQ ID NO:32	D1270N	1645-18-12	WT ST	GAATCCCAAGACACACCATCGATCTGGATTTCTCCTTCAGTGTTCAGTAGTCTCAAAAAAGCTGATAT	659200	68
SEQ ID NO:33	D1270N	1645-18-16	MT ST	GAATCCCAAGACACACCATTGATCTGGATTTCTCCTTCAGTGTTCAGTAGTCTCAAAAAAGCTGATAT	659500	68
SEQ ID NO:34	D1270N	23-746	DM Red FRETw/FAM stem- WT	Z35-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-ctc-ggc-gcg-hex		
SEQ ID NO:35	D1270N	23-210	ER24 FAM FRET - MT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-tcc-gcg-tcc-gt-hex		
SEQ ID NO:36	R560T	1614-55-01	invader	GACATTTACAGCAAATGCTTGCTAGACCAATAATTAGTTATTCACT	452500	46
SEQ ID NO:37	R560T	1614-55-04	Wt probe (ER24)	ACGGACGCGGAGCTTGCTAAAGAAATTCTTGCT-hex	308700	37
SEQ ID NO:38	R560T	1614-55-06	Mt probe (DM)	CGCGCCGAGGGTTGCTAAAGAAATTCTTGCT-hex	283300	35
SEQ ID NO:39	R560T	1614-55-03	WT ST	AACGAGCAAGAATTTCTTTAGCAAGGTGAATAACTAATTATTGGTCTAGCAAGCATTTGCTGTAAATGTCT	706600	71
SEQ ID NO:40	R560T	1614-55-07	MT ST	AACGAGCAAGAATTTCTTTAGCAACGTGAATAACTAATTATTGGTCTAGCAAGCATTTGCTGTAAATGTCT	703300	71
SEQ ID NO:41	R560T	23-210	ER24 FAM FRET – WT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-tcc-gcg-tcc-gt-hex		
SEQ ID NO:42	R560T	23-205	DM Red FRET-- MT	Z35-tct-X-tcg-gcc-ttt-tgg-ccg-aga-gac-ctc-ggc-gcg-hex		
SEQ ID NO:43	621+1G>T	1618-48-10	Invader	CCTTCATCACATTGGAATGCAGATGAGAATAGCTATGTTTAGTTTGATTTATAAGAAGC	588400	59
SEQ ID NO:44	621+1G>T	1665-71-02	WT ER24	ACGGACGCGGAGGTAATACTTCCTTGCAC-hex	277800	33
SEQ ID NO:45	621+1G>T	1618-48-15	MT Probe (DM)	CGCGCCGAGGTTAATACTTCCTTGCACAGG-hex	267700	35
SEQ ID NO:46	621+1G>T	1618-48-14	WT ST	GGGGCCTGTGCAAGGAAGTATTACCTTCTTATAAATCAAACTAAACATAGCTATTCTCATCTGCATTCCAATGTGATGAAGG	825700	85
SEQ ID NO:47	621+1G>T	1618-48-18	MT ST	GGGGCCTGTGCAAGGAAGTATTAACTTCTTATAAATCAAACTAAACATAGCTATTCTCATCTGCATTCCAATGTGATGAAGG	830500	85
SEQ ID NO:48	621+1G>T	23-755	ER24 Red FRET w/Fam stem– WT	Z35-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-tcc-gcg-tcc-gt-hex		
SEQ ID NO:49	621+1G>T	23-428	DM FAM FRET-- MT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-ctc-ggc-gcg-hex		
SEQ ID NO:50	1717-1G>A	1548-76-07	Invader	GATGTGCCTTTCAAATTCAGATTGAGCATACTAAAAGTGACTCTCTAATTTTCTATTTTTGGTAATC	644800	67
SEQ ID NO:51	1717-1G>A	1657-96-02	WT probe (DM)	CGCGCCGAGGAGGACATCTCCAAGTTTG-hex	266500	32
SEQ ID NO:52	1717-1G>A	1657-40-02	MT probe (ER24)	ACGGACGCGGAGAAGACATCTCCAAGTTTG-hex	298500	34
SEQ ID NO:53	1717-1G>A	1618-56-14	WT ST	CTCTGCAAACTTGGAGATGTCCTATTACCAAAAATAGAAAATTAGAGAGTCACTTTTAGTATGCTCAATCTGAATTTGAAAGC	863600	87
SEQ ID NO:54	1717-1G>A	1618-56-18	MT ST	CTCTGCAAACTTGGAGATGTCTTATTACCAAAAATAGAAAATTAGAGAGTCACTTTTAGTATGCTCAATCTGAATTTGAAAGC	864500	87

FIGURE 3

SEQ ID NO	Mutation	Oligo Name	Oligo type	Sequence (5'-3')	ε260 M-1 cm-1	Length
SEQ ID NO:55	1717-1G>A	23-746	DM Red FRET w/FAM stem– WT	Z35-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-ctc-ggc-gcg-hex		
SEQ ID NO:56	1717-1G>A	23-210	ER24 FAM FRET– MT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-tcc-gcg-tcc-gt-hex		
SEQ ID NO:57	1078delT	1614-60-01	Invader	CCTTTGATTAGTGCATAGGGAAGCACAGATAAAAACACCACAT	434600	43
SEQ ID NO:58	1078delT	1614-60-02	WT Probe DM	CGCGCCGAGGAAGAACCCTGAGAAGAAGA-hex	298900	29
SEQ ID NO:59	1078delT	1614-60-08	MT Probe ER24	ACGGACGCGGAGAGAACCCTGAGAAGAAGAA-hex	329000	31
SEQ ID NO:60	1078delT	1614-60-03	WT ST	AGCCTTCTTCTTCTCAGGGTTCTTTGTGGTGTTTTTATCTGTGCTTCCCTATGCACTAATCAAAGGAA	623300	68
SEQ ID NO:61	1078delT	1614-60-07	MT ST	AGCCTTCTTCTTCTCAGGGTTCTTGTGGTGTTTTTATCTGTGCTTCCCTATGCACTAATCAAAGGAA	615200	67
SEQ ID NO:62	1078delT	23-428	DM FAM FRET- WT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-ctc-ggc-gcg-hex		
SEQ ID NO:63	1078delT	23-755	ER24 Red FRET w/FAM Stem- MT	Z35-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-tcc-gcg-tcc-gt-hex		
SEQ ID NO:64	R347P	1618-62-01	Invader	CAGGGAAATTGCCGAGTGACCGCCATGT	271100	28
SEQ ID NO:65	R347P	1657-40-04	WT Probe (DM)	CGCGCCGAGGCGCAGAACAATGCAGAAT-hex	275800	32
SEQ ID NO:66	R347P	1696-93-05	MT ER24	ACGGACGCGGAGGGCAGAACAATGCA-hex	266700	30
SEQ ID NO:67	R347P	1618-62-05	WT ST	CTCATTCTGCATTGTTCTGCGCATGGCGGTCACTCGGCAATTTCCCTGGGT	452500	51
SEQ ID NO:68	R347P	1618-62-09	MT ST	CTCATTCTGCATTGTTCTGCCCATGGCGGTCACTCGGCAATTTCCCTGGGT	450200	51
SEQ ID NO:69	R347P	23-394	ER24 Red FRET – MT	Z35-tct-X-tcg-gcc-ttt-tgg-ccg-aga-gac-tcc-gcg-tcc-gt-hex		
SEQ ID NO:70	R347P	23-428	DM FAM FRET– WT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-ctc-ggc-gcg-hex		
SEQ ID NO:71	2184delA	1532-85-01	Mt probe (DM)	CGCGCCGAGGTTTGTTTCTGTCCAGGAG-hex	257300	32
SEQ ID NO:72	2184delA	1582-25-02	Wt probe (Er24)	ACGGACGCGGAGTTTTGTTTCTGTCCAGGAG-hex	295500	35
SEQ ID NO:73	2184delA	1532-85-04	invader	CTTCCTTTTTTCCCCAAACTCTCCAGTCTGTTTAAAAGATTGTTTA	418200	46
SEQ ID NO:74	2184delA	1660-88-17	plasmid Het target			
SEQ ID NO:75	2184delA	23-210	ER24 FAM FRET-Wt	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-tcc-gcg-tcc-gt-hex		
SEQ ID NO:76	2184delA	23-746	DM Red FRET w/FAM stem-Mt	Z35-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-ctc-ggc-gcg-hex		
SEQ ID NO:77	V520F	16186602	WT Probe (DM)	CGCGCCGAGGCGCTTCTGTATCTATATTCATCA-hex	304500	33
SEQ ID NO:78	V520F	16186607	MT Probe (ER24)	ACGGACGCGGAGAGCTTCTGTATCTATATTCATCAT-hex	348600	36
SEQ ID NO:79	V520F	16186601	Invader	CACATAGTTTCTTACCTCTTCTAGTTGGCATGCTTTGATGAT	386600	42
SEQ ID NO:80	V520F	16186605	WT Synthetic Target	TCCTATGATGAATATAGATACAGAAGCGTCATCAAAGCATGCCAACTAGAAGAGGTAAGAAACTATGTGAAT	747300	72
SEQ ID NO:81	V520F	16186609	MT Synthetic Target	TCCTATGATGAATATAGATACAGAAGCTTCATCAAAGCATGCCAACTAGAAGAGGTAAGAAACTATGTGAAT	744100	72
SEQ ID NO:82	V520F	23-428	DM FAM FRETWT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-ctc-ggc-gcg-hex		
SEQ ID NO:83	V520F	23-394	ER24 RED FRET MT	Z35-tct-X-tcg-gcc-ttt-tgg-ccg-aga-gac-tcc-gcg-tcc-gt-hex		
SEQ ID NO:84	R347H	1618-68-10	Invader	GGAAAATATTCACCACCATCTCATTCTGCATTGTTCTGCT	370700	40
SEQ ID NO:85	R347H	1618-68-12	WT Probe (ER24)	ACGGACGCGGAGGCATGGCGGTCAC-hex	242300	29
SEQ ID NO:86	R347H	1665-93-04	MT ER38	AGGCCACGGACGACATGGCGGTCAC-hex	242300	29
SEQ ID NO:87	R347H	1618-68-14	WT ST	GCCGAGTGACCGCCATGCGCAGAACAATGCAGAATGAGATGGTGGTGAATATTTTCCT	643800	58
SEQ ID NO:88	R347H	1618-68-18	MT ST	GCCGAGTGACCGCCATGTGCAGAACAATGCAGAATGAGATGGTGGTGAATATTTTCCT	645100	58
SEQ ID NO:89	R347H	23-210	ER24 FAM FRET – WT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-tcc-gcg-tcc-gt-hex		
SEQ ID NO:90	R347H	23-752	ER38 Red FRET w/FAM stem – MT	Z35-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-gtc-cgt-ggc-ct-hex		
SEQ ID NO:91	2183AA>G	1645-26-10	invader AS	GAGATGCTCCTGTCTCCTGGACAGAAACAAAAAT	335200	34
SEQ ID NO:92	2183AA>G	1667-19-08	Wt ER24	ACGGACGCGGAGAACAATCTTTTAAACAGACTG-hex	331900	37
SEQ ID NO:93	2183AA>G	1667-19-10	Mt DM	CGCGCCGAGGGCAATCTTTTAAACAGACTG-hex	286500	34
SEQ ID NO:94	2183AA>G	1645-26-12	WT ST	CCCCAAACTCTCCAGTCTGTTTAAAAGATTGTTTTTTTGTTTCTGTCCAGGAGACAGGAGCATCTCCTTCT	654900	71
SEQ ID NO:95	2183AA>G	1645-26-16	MT ST	CCCCAAACTCTCCAGTCTGTTTAAAAGATTGCTTTTTGTTTCTGTCCAGGAGACAGGAGCATCTCCTTCT	644100	70
SEQ ID NO:96	2183AA>G	23-755	ER24 Red FRET w/FAM stem – WT	Z35-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-tcc-gcg-tcc-gt-hex		
SEQ ID NO:97	2183AA>G	23-428	DM FAMFRET – MT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-ctc-ggc-gcg-hex		
SEQ ID NO:98	R334W	1297-83-04	Invader	CGCAGAACAATGCAGAATGAGATGGTGGTGAATATTTTCCT	409900	41
SEQ ID NO:99	R334W	1618-64-02	WT DM	CGCGCCGAGGGGAGGATGATTCCTTTGAT-hex	267600	34
SEQ ID NO:100	R334W	1618-64-07	MT ER24	ACGGACGCGGAGAGAGGATGATTCCTTTGATTA-hex	316900	37
SEQ ID NO:101	R334W	1618-64-05	WT ST	GCACTAATCAAAGGAATCATCCTCCGGAAAATATTCACCACCATCTCATTCTGCATTGTTCTGCGT	624200	66
SEQ ID NO:102	R334W	1618-64-09	MT ST	GCACTAATCAAAGGAATCATCCTCTGGAAAATATTCACCACCATCTCATTCTGCATTGTTCTGCGT	624500	66
SEQ ID NO:103	R334W	23-746	DM Red FRETw/ Fam WT	Z35-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-ctc-ggc-gcg-hex		
SEQ ID NO:104	R334W	23-210	ER24 FAM FRET MT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-tcc-gcg-tcc-gt-hex		
SEQ ID NO:105	R117H	1614-48-10	Invader	AGAATCATAGCTTCCTATGACCCGGATAACAAGGAGGAACT	414400	41
SEQ ID NO:106	R117H	1614-48-11	WT DM	CGCGCCGAGGGCTCTATCGCGATTTATCTA-hex	277600	34
SEQ ID NO:107	R117H	1614-48-18	MT ER38	AGGCCACGGACGACTCTATCGCGATTTATCTAG-hex	317300	37
SEQ ID NO:108	R117H	1614-48-12	WT ST	ATGCCTAGATAAATCGCGATAGAGCGTTCCTCCTTGTTATCCGGGTCATAGGAAGCTATGATTCTTCT	651200	68

FIGURE 3

SEQ ID NO	Mutation	Oligo Name	Oligo type	Sequence (5'-3')	ε260 M-1 cm-1	Length
SEQ ID NO:109	R117H	1614-48-16	MT ST	ATGCCTAGATAAATCGCGATAGAGTGTTCCTCCTTGTTATCCGGGTCATAGGAAGCTATGATTCTTCT	653300	68
SEQ ID NO:110	R117H	23-428	DM FAM FRET WT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-ctc-ggc-gcg-hex		
SEQ ID NO:111	R117H	23-211	ER38 RED FRET MT	Z35-tct-X-tcg-gcc-ttt-tgg-ccg-aga-gac-gtc-cgt-ggc-ct-hex		
SEQ ID NO:112	2789+5G>A	1297-83-06	Invader	TTTGGTTGTGCTGTGGCTCCTTGGAAAGTGAT	296200	32
SEQ ID NO:113	2789+5G>A	1618-46-13	WT ER38	AGGCCACGGACGGTATTCCATGTCCTATTGTG-hex	292600	37
SEQ ID NO:114	2789+5G>A	1618-46-16	MT ER24	ACGGACGCGGAGATATTCCATGTCCTATTGTG-hex	298400	37
SEQ ID NO:115	2789+5G>A	1618-46-14	WT ST	TCTACACAATAGGACATGGAATACTCACTTTCCAAGGAGCCACAGCACAACCAAAT	554800	56
SEQ ID NO:116	2789+5G>A	1618-46-18	MT ST	TCTACACAATAGGACATGGAATATTCACTTTCCAAGGAGCCACAGCACAACCAAAT	556700	56
SEQ ID NO:117	2789+5G>A	23-211	ER38 RED FRET WT	Z35-tct-X-tcg-gcc-ttt-tgg-ccg-aga-gac-gtc-cgt-ggc-ct-hex		
SEQ ID NO:118	2789+5G>A	23-210	ER24 FAM FRET MT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-tcc-gcg-tcc-gt-hex		
SEQ ID NO:119	394delTT	1665-32-10	Invader	CCTTCGGCGATGTTTTTTCTGGAGATTTATGTTCTATGGAATT	400100	43
SEQ ID NO:120	394delTT	1714-28-02	WT (ER38)	AGGCCACGGACGCTTTTTATATTTAGGGGTAAGGATCT-hex	371400	42
SEQ ID NO:121	394delTT	1680-16-07	MT (ER24)	ACGGACGCGGAGCTTTATATTTAGGGGTAAGGATCTC-hex	366000	41
SEQ ID NO:122	394delTT	1614-65-12	WT ST	ACAAATGAGATCCTTACCCCTAAATATAAAAAGATTCCATAGAACATAAATCTCCAGAAAAAACATCGCCGAAGGGC	788000	77
SEQ ID NO:123	394delTT	1614-65-16	MT ST	ACAAATGAGATCCTTACCCCTAAATATAAAGATTCCATAGAACATAAATCTCCAGAAAAAACATCGCCGAAGGGC	764000	75
SEQ ID NO:124	394delTT	23-211	ER38 Red FRET -- WT	Z35-tct-X-tcg-gcc-ttt-tgg-ccg-aga-gac-gtc-cgt-ggc-ct-hex		
SEQ ID NO:125	394delTT	23-210	ER24 FAM FRET -- MT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-tcc-gcg-tcc-gt-hex		
SEQ ID NO:126	3849+10kbC>T	1618-44-01	Invader	TGCATTGTACCATGAATAGAACATTTCCTTTCAGGGTGTCTTACTCT	492000	47
SEQ ID NO:127	3849+10kbC>T	1757-50-02	WT DM	CGCGCCGAGGGCCATTTTAATACTGCAACAGA-hex	308400	36
SEQ ID NO:128	3849+10kbC>T	1618-44-07	Mt probe (ER24)	ACGGACGCGGAGACCATTTTAATACTGCAACAG-hex	372800	37
SEQ ID NO:129	3849+10kbC>T	1618-44-05	WT ST	CCATCTGTTGCAGTATTAAAATGGCGAGTAAGACACCCTGAAAGGAAATGTTCTATTCATGGTACAATGCAT	715200	72
SEQ ID NO:130	3849+10kbC>T	1618-44-09	MT ST	CCATCTGTTGCAGTATTAAAATGGTGAGTAAGACACCCTGAAAGGAAATGTTCTATTCATGGTACAATGCAT	717300	72
SEQ ID NO:131	3849+10kbC>T	23-205	DM Red FRET -- WT	Z35-tct-X-tcg-gcc-ttt-tgg-ccg-aga-gac-ctc-ggc-gcg-hex		
SEQ ID NO:132	3849+10kbC>T	23-210	ER24 FAM FRET -- MT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-tcc-gcg-tcc-gt-hex		
SEQ ID NO:133	W1282X	1618-42-01	Invader	GCTCACCTGTGGTATCACTCCAAAGGCTTTCCTA	311700	34
SEQ ID NO:134	W1282X	1618-42-03	WT ER24	ACGGACGCGGAGCCACTGTTGCAAAGTTATT-hex	300300	35
SEQ ID NO:135	W1282X	1618-42-06	MT DM	CGCGCCGAGGTCACTGTTGCAAAGTTATTG-hex	283200	34
SEQ ID NO:136	W1282X	1618-42-05	WT ST	GATTCAATAACTTTGCAACAGTGGAGGAAAGCCTTTGGAGTGATACCACAGGTGAGCAAT	602000	60
SEQ ID NO:137	W1282X	1618-42-09	MT ST	GATTCAATAACTTTGCAACAGTGAAGGAAAGCCTTTGGAGTGATACCACAGGTGAGCAAT	603900	60
SEQ ID NO:138	W1282X	23-210	ER 24 FAM FRET WT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-tcc-gcg-tcc-gt-hex		
SEQ ID NO:139	W1282X	23-746	DM Red FRET w/Fam stem MT	Z35-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-ctc-ggc-gcg-hex		
SEQ ID NO:140	G542X	1614-49-10	Invader	AATAGGACATCTCCAAGTTTGCAGAGAAAGACAATATAGTTCTTC	457000	45
SEQ ID NO:141	G542X	1614-49-14	WT probe (ER38)	AGGCCACGGACGGGAGAAGGTGGAATCAC	296800	29
SEQ ID NO:142	G542X	1614-49-15	MT probe (DM)	CGCGCCGAGGTGAGAAGGTGGAATCACA	282400	28
SEQ ID NO:143	G542X	1614-49-12	WT ST	TCAGTGTGATTCCACCTTCTCCAAGAACTATATTGTCTTTCTCTGCAAACTTGGAGATGTCCTATTT	622000	67
SEQ ID NO:144	G542X	1614-49-16	MT ST	TCAGTGTGATTCCACCTTCTCAAAGAACTATATTGTCTTTCTCTGCAAACTTGGAGATGTCCTATTT	626800	67
SEQ ID NO:145	G542X	23-752	ER38-Red FRET w/FAM Stem--WT	Z35-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-gtc-cgt-ggc-ct-hex		
SEQ ID NO:146	G542X	23-428	DM-FAM FRET--MT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-ctc-ggc-gcg-hex		
SEQ ID NO:147	3120+1G>A	1618-58-10	Invader	GCAATTTTGGATGACCTTCTGCCTCTTACCATATTTGACTTCATCCAGT	496000	49
SEQ ID NO:148	3120+1G>A	1745-66-03	WT ER38	AGGCCACGGACGGTATGTAAAAATAAGTACCGTT-hex	348100	38
SEQ ID NO:149	3120+1G>A	1618-58-15	Mt probe (DM)	CGCGCCGAGGATATGTAAAAATAAGTACCGTTAA-hex	350500	38
SEQ ID NO:150	3120+1G>A	1618-58-14	WT ST	ATACTTAACGGTACTTATTTTTACATACCTGGATGAAGTCAAATATGGTAAGAGGCAGAAGGTCATCCAAAATTGCTAT	796400	79
SEQ ID NO:151	3120+1G>A	1618-58-18	MT ST	ATACTTAACGGTACTTATTTTTACATATCTGGATGAAGTCAAATATGGTAAGAGGCAGAAGGTCATCCAAAATTGCTAT	798300	79
SEQ ID NO:152	3120+1G>A	23-752	ER38 Red w/FAM stem -- WT	Z35-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-gtc-cgt-ggc-ct-hex		
SEQ ID NO:153	3120+1G>A	23-428	DM FAM FRET -- MT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-ctc-ggc-gcg-hex		
SEQ ID NO:154	I148T	1614-50-10	Invader	CCTACACCCAGCCATTTTTGGCCTTCATCACAA	298400	33
SEQ ID NO:155	I148T	1614-50-11	WT probe (DM)	CGCGCCGAGGTTGGAATGCAGATGAGAATA-hex	304400	30
SEQ ID NO:156	I148T	1614-50-17	MT probe (ER24)	ACGGACGCGGAGCTGGAATGCAGATGAGAA-hex	309700	30
SEQ ID NO:157	I148T	1614-50-12	WT ST	TAGCTATTCTCATCTGCATTCCAATGTGATGAAGGCCAAAAATGGCTGGGTGTAGGAGT	576700	59
SEQ ID NO:158	I148T	1614-50-16	MT ST	TAGCTATTCTCATCTGCATTCCAGTGTGATGAAGGCCAAAAATGGCTGGGTGTAGGAGT	575400	59
SEQ ID NO:159	I148T	23-428	DM FAM FRET --WT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-ctc-ggc-gcg-hex		
SEQ ID NO:160	I148T	23-755	ER24 Red FRET w/FAM stem--MT	Z35-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-tcc-gcg-tcc-gt-hex		
SEQ ID NO:161	711+1G>T	1453-08-06	Invader (+2S)	GCCTTTCCAGTTGTATAATTTATAACAATAGTGCCTAAAAGATTAAATCAATAGGTACATT	615700	61
SEQ ID NO:162	711+1G>T	1791-06-03	Wt DM	CGCGCCGAGGACTTCATCAAATTTGTTCAG-hex	282800	34

FIGURE 3

SEQ ID NO	Mutation	Oligo Name	Oligo type	Sequence (5'-3')	ε260 M-1 cm-1	Length
SEQ ID NO:163	711+1G>T	1791-06-02	Mt ER38	AGGCCACGGACGAATTCATCAAATTTGTTCAGG-hex	325500	37
SEQ ID NO:164	711+1G>T	1614-56-03	Wt ST	AACAACCTGAACAAATTTGATGAAGTATGTACCTATTGATTTAATCTTTTAGGCACTATTGTTATAAATTATACAACTGGAAAC	882700	88
SEQ ID NO:165	711+1G>T	1614-56-07	Mt ST	AACAACCTGAACAAATTTGATGAATTATGTACCTATTGATTTAATCTTTTAGGCACTATTGTTATAAATTATACAACTGGAAAG	880100	88
SEQ ID NO:166	711+1G>T	23-204	ER38 FAM FRET--MT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-gtc-cgt-ggc-ct-hex		
SEQ ID NO:167	711+1G>T	23-746	DM Red FRET w/FAMstem--WT	Z35-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-ctc-ggc-gcg-hex		
SEQ ID NO:168	S549N	1614-62-01	Invader	TCACCTTGCTAAAGAAATTCTTGCTCGTTGACCTCCAA	352200	38
SEQ ID NO:169	S549N	1614-62-04	WT probe (ER24)	ACGGACGCGGAGCTCAGTGTGATTCCACC-hex	275200	33
SEQ ID NO:170	S549N	1614-62-06	MT probe (DM)	CGCGCCGAGGTTCAGTGTGATTCCACC-hex	247800	31
SEQ ID NO:171	S549N	1614-62-03	WT ST	AGAAGGTGGAATCACACTGAGTGGAGGTCAACGAGCAAGAATTTCTTTAGCAAGGTGAATT	622500	61
SEQ ID NO:172	S549N	1614-62-07	MT ST	AGAAGGTGGAATCACACTGAATGGAGGTCAACGAGCAAGAATTTCTTTAGCAAGGTGAATT	623800	61
SEQ ID NO:173	S549N	23-755	ER24 Red FRET w/FAM stem -- WT	Z35-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-tcc-gcg-tcc-gt-hex		
SEQ ID NO:174	S549N	23-428	DM FAM FRET -- MT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-ctc-ggc-gcg-hex		
SEQ ID NO:175	D1152H	1645-17-10	Invader	TGAGTACATTGCAGTGGGCTGTAAACTCCAGCATAT	351900	36
SEQ ID NO:176	D1152H	1733-73-02	WT probe (ER24)	ACGGACGCGGAGGATGTGGATAGCTTGGTA-hex	303500	34
SEQ ID NO:177	D1152H	1733-73-03	Mt probe (ER38)	AGGCCACGGACGCATGTGGATAGCTTGGTA-hex	296300	34
SEQ ID NO:178	D1152H	1645-17-12	WT ST	AGACTTACCAAGCTATCCACATCTATGCTGGAGTTTACAGCCCACTGCAATGTACTCATGT	581000	61
SEQ ID NO:179	D1152H	1645-17-16	MT ST	AGACTTACCAAGCTATCCACATGTATGCTGGAGTTTACAGCCCACTGCAATGTACTCATGT	584500	61
SEQ ID NO:180	D1152H	23-210	ER24 FAM FRET -- WT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-tcc-gcg-tcc-gt-hex		
SEQ ID NO:181	D1152H	23-752	ER38 Red FRET w/FAM stem -- MT	Z35-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-gtc-cgt-ggc-ct-hex		
SEQ ID NO:182	3905insT	1614-72-12	Invader	GATCTGGATTTCTCCTTCAGTGTTCAGTAGTCTCAT	334000	
SEQ ID NO:183	3905insT	1667-91-02	WT probe (ER38)	AGGCCACGGACGAAAAAGCTGATAACAAAGTACT	352100	
SEQ ID NO:184	3905insT	1614-72-07	MT probe (DM)	CGCGCCGAGGAAAAAAGCTGATAACAAAGTACT	337300	
SEQ ID NO:185	3905insT	1645-07-01	WT ST	CAGGGAAGAGTACTTTGTTATCAGCTTTTTTGAGACTACTGAACACTGAAGGAGAAATCCAGATCGATGG	698200	
SEQ ID NO:186	3905insT	1645-07-02	MT ST	CAGGGAAGAGTACTTTGTTATCAGCTTTTTTTGAGACTACTGAACACTGAAGGAGAAATCCAGATCGATGG	706300	
SEQ ID NO:187	3905insT	23-428	DM FAM FRET--MT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-ctc-ggc-gcg-hex		
SEQ ID NO:188	3905insT	23-752	ER38 Red w/FAM stem--WT	Z35-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-gtc-cgt-ggc-ct-hex		
SEQ ID NO:189	Y1092X C>G	1645-14-10	Invader	CCACAAAGCTCTGAATTTACATACTGCCAACTGGTTCTTGTAT	404700	
SEQ ID NO:190	Y1092X C>G	1733-75-01	WT probe DM	CGCGCCGAGGCCTGTCAACACTGC	214800	
SEQ ID NO:191	Y1092X C>G	1645-14-17	MT probe ER24	ACGGACGCGGAGGCTGTCAACACTGCG	258400	
SEQ ID NO:192	Y1092X C>G	1645-14-12	WT ST	CCAGCGCAGTGTTGACAGGTACAAGAACCAGTTGGCAGTATGTAAATTCAGAGCTTTGTGGAAT	636100	
SEQ ID NO:193	Y1092X C>G	1645-14-16	MT ST	CCAGCGCAGTGTTGACAGCTACAAGAACCAGTTGGCAGTATGTAAATTCAGAGCTTTGTGGAAT	631400	
SEQ ID NO:194	Y1092X C>G	23-428	DM FAM FRET-WT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-ctc-ggc-gcg-hex		
SEQ ID NO:195	Y1092X C>G	23-394	ER24 Red FRET-MT	Z35-tct-X-tcg-gcc-ttt-tgg-ccg-aga-gac-tcc-gcg-tcc-gt-hex		
SEQ ID NO:196	3849+4A>G	1645-13-10	Invader AS	ACATTTCCTTCTCAATAAGTCCTGGCCAGAGGGTGT	340400	
SEQ ID NO:197	3849+4A>G	1645-13-14	Wt ER38	AGGCCACGGACGAGATTTGAACACTGCTTG	291200	
SEQ ID NO:198	3849+4A>G	1645-13-15	Mt DM	CGCGCCGAGGGGATTTGAACACTGCTTG	261300	
SEQ ID NO:199	3849+4A>G	1645-13-12	Wt ST	AAAGCAAGCAGTGTTCAAATCTCACCCTCTGGCCAGGACTTATTGAGAAGGAAATGTTCT	587100	
SEQ ID NO:200	3849+4A>G	1645-13-16	Mt ST	AAAGCAAGCAGTGTTCAAATCCCACCCTCTGGCCAGGACTTATTGAGAAGGAAATGTTCT	586200	
SEQ ID NO:201	3849+4A>G	23-205	DM Red FRET	Z35-tct-X-tcg-gcc-ttt-tgg-ccg-aga-gac-ctc-ggc-gcg-hex		
SEQ ID NO:202	3849+4A>G	23-204	ER38 FAM FRET	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-gtc-cgt-ggc-ct-hex		
SEQ ID NO:203	3876delA	1614-61-01	Invader S	CCTTCAGTGTTCAGTAGTCTCAAAAAAGCTGATAACAAAGTACTCTTCCT	483100	
SEQ ID NO:204	3876delA	1614-61-02	Wt DM	CGCGCCGAGGCTGATCCAGTTCTTCCCV	237300	
SEQ ID NO:205	3876delA	1614-61-09	Mt ER38	AGGCCACGGACGCGATCCAGTTCTTCCCV	256600	
SEQ ID NO:206	3876delA	1614-61-03	WT ST	CTCTTGGGAAGAACTGGATCAGGGAAGAGTACTTTGTTATCAGCTTTTTTGAGACTACTGAACACTGAAGGAG	719600	
SEQ ID NO:207	3876delA	1614-61-07	MT ST	CTCTTGGGAAGAACTGGATCGGGAAGAGTACTTTGTTATCAGCTTTTTTGAGACTACTGAACACTGAAGGAG	706800	
SEQ ID NO:208	3876delA	23-428	DM FAM FRET WT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-ctc-ggc-gcg-hex		
SEQ ID NO:209	3876delA	23-752	ER38 Red w/FAM stem MT	Z35-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-gtc-cgt-ggc-ct-hex		
SEQ ID NO:210	Q493X	1645-12-01	Invader	TGGTGCCAGGCATAATCCAGGAAAACTT	275700	
SEQ ID NO:211	Q493X	1767-83-03	WT ER24	ACGGACGCGGAGGAGAACAGAATGAAATTCT	322300	
SEQ ID NO:212	Q493X	1645-12-09	MT ER38	AGGCCACGGACGAAGAACAGAATGAAATTCTTCC	343700	
SEQ ID NO:213	Q493X	1645-12-03	WT ST	CAGTGGAAGAATTTCATTCTGTTCTCAGTTTTCCTGGATTATGCCTGGCACCATTT	518600	
SEQ ID NO:214	Q493X	1645-12-07	MT ST	CAGTGGAAGAATTTCATTCTGTTCTTAGTTTTCCTGGATTATGCCTGGCACCATTT	520100	
SEQ ID NO:215	Q493X	23-210	ER24 FAM FRET -- WT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-tcc-gcg-tcc-gt-hex		
SEQ ID NO:216	Q493X	23-752	ER38 Red FRETw/FAM stem -- MT	Z35-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-gtc-cgt-ggc-ct-hex		

FIGURE 3

SEQ ID NO	Mutation	Oligo Name	Oligo type	Sequence (5'-3')	ε260 M-1 cm-1	Length
SEQ ID NO:217	G551D	1614-52-10	Invader AS	TGGAGAAGGTGGAATCACACTGAGTGGAGT	308600	
SEQ ID NO:218	G551D	1711-01-01	Wt DM	CGCGCCGAGGGTCAACGAGCAAGAATTTV	274400	
SEQ ID NO:219	G551D	1711-01-06	Mt ER38	AGGCCACGGACGATCAACGAGCAAGAATTTCV	311200	
SEQ ID NO:220	G551D	1614-52-12	Wt ST	CTAAAGAAATTCTTGCTCGTTGACCTCCACTCAGTGTGATTCCACCTTCTCCAAGT	514900	
SEQ ID NO:221	G551D	1614-52-16	Mt ST	CTAAAGAAATTCTTGCTCGTTGATCTCCACTCAGTGTGATTCCACCTTCTCCAAGT	516800	
SEQ ID NO:222	G551D	23-746	DM Red FRET w/FAM stem WT	Z35-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-ctc-ggc-gcg-hex		
SEQ ID NO:223	G551D	23-204	ER38 FAM FRET	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-gtc-cgt-ggc-ct-hex		
SEQ ID NO:224	R553X	1645-72-01	Invader +2S	GCTAGACCAATAATTAGTTATTCACCTTGCTAAAGAAATTCTTGCTG	456700	
SEQ ID NO:225	R553X	1667-08-02	Wt ER38	AGGCCACGGACGCGTTGACCTCCACTCA	260300	
SEQ ID NO:226	R553X	1453-07-01	Mt DM	CGCGCCGAGGCATTGACCTCCACTCAGT	253700	
SEQ ID NO:227	R553X	1614-53-03	Wt ST	TCACACTGAGTGGAGGTCAACGAGCAAGAATTTCTTTAGCAAGGTGAATAACTAATTATTGGTCTAGCAAGCT	727300	
SEQ ID NO:228	R553X	1614-53-07	Mt ST	TCACACTGAGTGGAGGTCAATGAGCAAGAATTTCTTTAGCAAGGTGAATAACTAATTATTGGTCTAGCAAGCT	728600	
SEQ ID NO:229	R553X	23-428	DM FAM FRET MT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-ctc-ggc-gcg-hex		
SEQ ID NO:230	R553X	23-752	ER38 Red FRET w/FAM stem WT	Z35-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-gtc-cgt-ggc-ct-hex		
SEQ ID NO:231	R1162X	1618-52-01	Invader	GTTTACCTTCTGTTGGCATGTCAATGAACTTAAAGACTCT	424200	
SEQ ID NO:232	R1162X	1618-52-03	WT probe (ER24)	ACGGACGCGGAGGGCTCACAGATCGCV	284000	
SEQ ID NO:233	R1162X	1618-52-08	Mt probe (ER38)	AGGCCACGGACGAGCTCACAGATCGCV	283800	
SEQ ID NO:234	R1162X	1618-52-05	WT ST	AGATGCGATCTGTGAGCCGAGTCTTTAAGTTCATTGACATGCCAACAGAAGGTAAACT	574600	
SEQ ID NO:235	R1162X	1618-52-09	MT ST	AGATGCGATCTGTGAGCTGAGTCTTTAAGTTCATTGACATGCCAACAGAAGGTAAACT	574900	
SEQ ID NO:236	R1162X	23-204	ER38 FAM FRET– MT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-gtc-cgt-ggc-ct-hex		
SEQ ID NO:237	R1162X	23-755	ER24 Red FRETw/FAM – WT	Z35-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-tcc-gcg-tcc-gt-hex		
SEQ ID NO:238	S549R (A>C)	1614-63-01	Invader	CACCTTGCTAAAGAAATTCTTGCTCGTTGACCTCCACC	344400	
SEQ ID NO:239	S549R (A>C)	1614-63-02	WT probe (DM)	CGCGCCGAGGTCAGTGTGATTCCACCTV	247500	
SEQ ID NO:240	S549R (A>C)	1733-78-02	MT probe (ER38)	AGGCCACGGACGGCAGTGTGATTCCAC	259500	
SEQ ID NO:241	S549R (A>C)	1614-63-03	WT ST	GAGAAGGTGGAATCACACTGAGTGGAGGTCAACGAGCAAGAATTTCTTTAGCAAGGTGAAT	624200	
SEQ ID NO:242	S549R (A>C)	1614-63-07	MT ST	GAGAAGGTGGAATCACACTGCGTGGAGGTCAACGAGCAAGAATTTCTTTAGCAAGGTGAAT	617600	
SEQ ID NO:243	S549R (A>C)	23-428	DM FAM FRET– WT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-ctc-ggc-gcg-hex		
SEQ ID NO:244	S549R (A>C)	23-211	ER38 Red FRET– MT	Z35-tct-X-tcg-gcc-ttt-tgg-ccg-aga-gac-gtc-cgt-ggc-ct-hex		
SEQ ID NO:245	F508C	1618-70-10	Invader AS	CAGTTTTCCTGGATTATGCCTGGCACCATTAAAGAAAATATCATCTC	450800	
SEQ ID NO:246	F508C	1791-37-01	Wt DM	CGCGCCGAGGTTGGTGTTTCCTATGATGAAT	291900	
SEQ ID NO:247	F508C	1826-07-05	Mt ER38	AGGCCACGGACGGTGGTGTTTCCTATGATG	287600	
SEQ ID NO:248	F508C	1618-70-14	WT ST	TATATTCATCATAGGAAACACCAAAGATGATATTTTCTTTAATGGTGCCAGGCATAATCCAGGAAAACTGAGT	736000	
SEQ ID NO:249	F508C	1618-70-18	MT ST	TATATTCATCATAGGAAACACCACAGATGATATTTTCTTTAATGGTGCCAGGCATAATCCAGGAAAACTGAGT	731600	
SEQ ID NO:250	F508C	23-428	DM FAM FRET-WT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-ctc-ggc-gcg-hex		
SEQ ID NO:251	F508C	23-211	ER38 Red FRET Mt	Z35-tct-X-tcg-gcc-ttt-tgg-ccg-aga-gac-gtc-cgt-ggc-ct-hex		
SEQ ID NO:252	Y1092X C>A	1645-14-10	Invader	CCACAAAGCTCTGAATTTACATACTGCCAACTGGTTCTTGTAT	404700	
SEQ ID NO:253	Y1092X C>A	1645-14-11	WT probe -DM	CGCGCCGAGGCCTGTCAACACTGCG	225400	
SEQ ID NO:254	Y1092X C>A	1645-15-08	MT probe -ER38	AGGCCACGGACGACTGTCAACACTGCG	258400	
SEQ ID NO:255	Y1092X C>A	1645-14-12	WT ST	CCAGCGCAGTGTTGACAGGTACAAGAACCAGTTGGCAGTATGTAAATTCAGAGCTTTGTGGAAT	636100	
SEQ ID NO:256	Y1092X C>A	1645-15-06	MT ST	CCAGCGCAGTGTTGACAGTTACAAGAACCAGTTGGCAGTATGTAAATTCAGAGCTTTGTGGAAT	634100	
SEQ ID NO:257	Y1092X C>A	23-428	DM FAM FRET–WT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-ctc-ggc-gcg-hex		
SEQ ID NO:258	Y1092X C>A	23-752	ER38 Red FRETw/FAM–MT	Z35-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-gtc-cgt-ggc-ct-hex		
SEQ ID NO:259	S549R (T>G)	1614-64-01	Invader	AGTTATTCACCTTGCTAAAGAAATTCTTGCTCGTTGACCTCCT	397300	
SEQ ID NO:260	S549R(T>G)	1778-64-06	WT ER38	AGGCCACGGACGACTCAGTGTGATTCCACC	285300	
SEQ ID NO:261	S549R (T>G)	1614-64-06	MT probe (DM)	CGCGCCGAGGCCTCAGTGTGATTCCACV	245100	
SEQ ID NO:262	S549R (T>G)	1614-64-03	WT ST	GAAGGTGGAATCACACTGAGTGGAGGTCAACGAGCAAGAATTTCTTTAGCAAGGTGAATAACTAAT	675300	
SEQ ID NO:263	S549R (T>G)	1614-64-07	MT ST	GAAGGTGGAATCACACTGAGGGGAGGTCAACGAGCAAGAATTTCTTTAGCAAGGTGAATAACTAAT	676700	
SEQ ID NO:264	S549R (T>G)	23-211	ER38 Red FRET– WT	Z35-tct-X-tcg-gcc-ttt-tgg-ccg-aga-gac-gtc-cgt-ggc-ct-hex		
SEQ ID NO:265	S549R (T>G)	23-428	DM FAM FRET– MT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-ctc-ggc-gcg-hex		
SEQ ID NO:266	del1507	1614-58-01	Invader S	CATGCTTTGATGACGCTTCTGTATCTATATTCATCATAGGAAACACCAAAT	493900	
SEQ ID NO:267	del1507	1645-56-01	Wt ER24	ACGGACGCGGAGGATGATATTTTCTTTAATGGTG	335900	
SEQ ID NO:268	del1507	1645-56-04	Mt ER38	AGGCCACGGACGGATATTTTCTTTAATGGTGCC	314500	
SEQ ID NO:269	del1507	1614-58-03	Wt ST	ATGCCTGGCACCATTAAAGAAAATATCATCTTTGGTGTTTCCTATGATGAATATAGATACAGAAGCGTCATCAAAGCATGCC	814200	
SEQ ID NO:270	del1507	1614-58-07	Mt ST	ATGCCTGGCACCATTAAAGAAAATATCTTTGGTGTTTCCTATGATGAATATAGATACAGAAGCGTCATCAAAGCATGCC	785500	

FIGURE 3

SEQ ID NO	Mutation	Oligo Name	Oligo type	Sequence (5'-3')	ε260 M-1 cm-1	Length
SEQ ID NO:271	del1507	23-204	ER38 FAM FRET MT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-gtc-cgt-ggc-ct-hex		
SEQ ID NO:272	del1507	23-755	ER24 Redw/FAM FRET WT	Z35-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-tcc-gcg-tcc-gt-hex		
SEQ ID NO:273	5T Variant (5T)	16924810	Probe (DM)	CGCGCCGAGG**G**TTTTTAACAGGGATTTGGG	286900	
SEQ ID NO:274	5T Variant (7T)	16925804	Probe (DM)	CGCGCCGAGG**G**TTTTTTTAACAGGGATTTGG	293000	
SEQ ID NO:275	5T Variant (9T)	16929202	Probe (DM)	CGCGCCGAGG**G**9TTTTTTTTACCAGGGATTTGGGGA	338300	
SEQ ID NO:276	5T Variant	16027813	Invader	CTCATCTTTTATTTTTGATGTGTGTGTGTGTGTGTGTA	353300	
SEQ ID NO:277	5T Variant	16027814	Invader	CTCATCTTTTATTTTTGATGTGTGTGTGTGTGTGTGTGTA	372100	
SEQ ID NO:278	5T Variant	16027815	Invader	CTCATCTTTTATTTTTGATGTGTGTGTGTGTGTGTGTGTGTA	390900	
SEQ ID NO:279	5T Variant	16027816	Invader	CTCATCTTTTATTTTTGATGTGTGTGTGTGTGTGTGTGTGTGTA	409700	
SEQ ID NO:280	5T Variant	16608401	Invader	CTCATCTTTTATTTTTGATGTGTGTGTGTGTGTGTA	334500	
SEQ ID NO:281	5T Variant	23-428	DM FAM FRET	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-ctc-ggc-gcg-hex		
SEQ ID NO:282	Y122X	1809-46-01	Invader	GTGTCCTCACAATAAAGAGAAGGCATAAGCCTATGCCTAA	403500	
SEQ ID NO:283	Y122X	1827-34-03	WT ER24	ACGGACGCGGAG**G**ATAAATCGCGATAGAGC	309000	
SEQ ID NO:284	Y122X	1827-34-12	MT ER38	AGGCCACGGACG**G**TTAAATCGCGATAGAG	295100	
SEQ ID NO:285	Y122X	1645-16-03	WT ST	GGAACGCTCTATCGCGATTTATCTAGGCATAGGCTTATGCCTTCTCTTTATTGTGAGGACACTGT	609400	
SEQ ID NO:286	Y122X	1645-16-07	MT ST	GGAACGCTCTATCGCGATTTAACTAGGCATAGGCTTATGCCTTCTCTTTATTGTGAGGACACTGT	612300	
SEQ ID NO:287	Y122X	23-394	ER24 Red FRET--WT	Z35-tct-X-tcg-gcc-ttt-tgg-ccg-aga-gac-tcc-gcg-tcc-gt-hex		
SEQ ID NO:288	Y122X	23-204	ER38 FAM FRET -- MT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-gtc-cgt-ggc-ct-hex		
SEQ ID NO:289	1898+1 G>A	1353-02-02	Invader	GACTCTCCTTTTGGATACCTAGATGTTTTAACAGAAAAAGAAATATTTGAAAGT		
SEQ ID NO:290	1898+1 G>A	1801-65-03	WT ER24	ACGGACGCGGAG**G**TATGTTCTTTGAATACCTTACT		
SEQ ID NO:291	1898+1 G>A	1801-65-08	MT DM	CGCGCCGAGG**A**TATGTTCTTTGAATACCTTACTT		
SEQ ID NO:292	1898+1 G>A	1614-59-12	WT ST	AGCATTATAAGTAAGGTATTCAAAGAACATACCTTTCAAATATTTCTTTTTCTGTTAAAACATCTAGGTATCCAAAAGGAGT		
SEQ ID NO:293	1898+1 G>A	1614-59-16	MT ST	AGCATTATAAGTAAGGTATTCAAAGAACATATCTTTCAAATATTTCTTTTTCTGTTAAAACATCTAGGTATCCAAAAGGAGT		
SEQ ID NO:294	1898+1 G>A	23-210	ER24 FAM FRET- WT	FAM-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-tcc-gcg-tcc-gt-hex		
SEQ ID NO:295	1898+1 G>A	23-746	DM Red FRET w/FAM- MT	Z35-tct-X-agc-cgg-ttt-tcc-ggc-tga-gac-ctc-ggc-gcg-hex		

X = Quencher = Z28
9= 2' O-methyl modified base

FIGURE 4

SEQ ID NO	Allele	Part No			
SEQ ID NO:417	R117H	1614-48-17	Mt Probe (ER24)	ACGGACGCGGAGACTCTATCGCGATTTATCTAGV	
SEQ ID NO:418	R117H	1614-48-10	invader	AGAATCATAGCTTCCTATGACCCGGATAACAAGGAGGAACT	
SEQ ID NO:419	W1282X	1618-42-04	Wt probe (ER38)	AGGCCACGGACGCCACTGTTGCAAAGTTATTV	
SEQ ID NO:420	711+1G>T	1791-06-04	Wt ER24	ACGGACGCGGAGACTTCATCAAATTTGTTCAG	
SEQ ID NO:421	711+1G>T	1510-82-03	Mt ER24	ACGGACGCGGAGAATTCATCAAATTTGTTCAGG	
SEQ ID NO:422	711+1G>T	1614-56-05	Wt probe (ER38)	AGGCCACGGACGCTTCATCAAATTTGTTCAGGTV	
SEQ ID NO:423	711+1G>T	1614-56-06	Mt probe (DM)	CGCGCCGAGGATTCATCAAATTTGTTCAGGTV	
SEQ ID NO:424	711+1G>T	1614-56-08	Mt Probe (ER24)	ACGGACGCGGAGATTCATCAAATTTGTTCAGGTV	
SEQ ID NO:425	711+1G>T	1614-56-01	invader	CCTTTCCAGTTGTATAATTTATAACAATAGTGCCTAAAAGATT AAATCAATAGGTACATAT	
SEQ ID NO:426	394delTT		invader	CCCTTCGGCGATGTTTTTTCTGGAGATTTATGTTCTATGGAA Tt	
SEQ ID NO:427	394delTT		WT probe	AGGCCACGGACGCTTTTTATATTTAGGGGTAAGGATCTHex	
SEQ ID NO:428	394delTT		MT probe	AAGCACGCAGCACCTTTATATTTAGGGGTAAGGATCTCHex	
SEQ ID NO:429	del507	1353-01-01	Invader S	GCTTTGATGACGCTTCTGTATCTATATTCATCATAGGAAACAC CAAT	454500
SEQ ID NO:430	del507	1556-23-09	Wt DM	CGCGCCGAGGAGATGATATTTTCTTTAATGGTG	319000
SEQ ID NO:431	del507	1826-61-01	Wt DM	CGCGCCGAGGAGATGATATTTTCTTTAATGGT	308700
SEQ ID NO:432	del507	1556-23-10	WT ER24	ACGGACGCGGAGAGATGATATTTTCTTTAATGGTG	349100
SEQ ID NO:433	del507	1826-61-02	WT ER24	ACGGACGCGGAGAGATGATATTTTCTTTAATGGT	338800
SEQ ID NO:434	del507	1556-23-11	WT ER38	AGGCCACGGACGAGATGATATTTTCTTTAATGGTG	345800
SEQ ID NO:435	del507	1826-61-03	WT ER38	AGGCCACGGACGAGATGATATTTTCTTTAATGGT	335500
SEQ ID NO:436	del507	1353-01-03	Mt DM	CGCGCCGAGGAGATATTTTCTTTAATGGTGCC	300900
SEQ ID NO:437	del507	1826-61-04	Mt DM	CGCGCCGAGGAGATATTTTCTTTAATGGTGC	293700
SEQ ID NO:438	del507	1353-55-01	Mt ER24	ACGGACGCGGAGAGATATTTTCTTTAATGGTGCCA	344800
SEQ ID NO:439	del507	1826-61-05	Mt ER24	ACGGACGCGGAGAGATATTTTCTTTAATGGTGCC	331000
SEQ ID NO:440	del507	1826-61-06	Mt ER24	ACGGACGCGGAGAGATATTTTCTTTAATGGTGC	323800
SEQ ID NO:441	del507	1353-55-02	Mt ER38	AGGCCACGGACGAGATATTTTCTTTAATGGTGCCA	341500
SEQ ID NO:442	del507	1826-61-07	Mt ER38	AGGCCACGGACGAGATATTTTCTTTAATGGTGCC	327700
SEQ ID NO:443	del507	1826-61-08	Mt ER38	AGGCCACGGACGAGATATTTTCTTTAATGGTGC	320500
SEQ ID NO:444	5T Variant (5T)	18312001	Probe (ER24)	ACGGACGCGGAGGTTTTTAACAGGGATTTGGG	
SEQ ID NO:445	5T Variant (5T)	18312002	Probe (ER38)	AGGCCACGGACGGTTTTTAACAGGGATTTGGG	
SEQ ID NO:446	5T Variant (5T)	16027817	Probe (DM)	CGCGCCGAGGGTTTTTAACAGGGATTTGGGG	
SEQ ID NO:447	5T Variant (5T)	16027818	Probe (ER24)	ACGGACGCGGAGGTTTTTAACAGGGATTTGGGG	
SEQ ID NO:448	5T Variant (5T)	16027819	Probe (ER38)	AGGCCACGGACGGTTTTTAACAGGGATTTGGGG	

FIGURE 4

SEQ ID NO:449	5T Variant (7T)	18312003	Probe (ER24)	ACGGACGCGGAGGTTTTTTTAACAGGGATTTGG
SEQ ID NO:450	5T Variant (7T)	18312004	Probe (ER38)	AGGCCACGGACGGTTTTTTTAACAGGGATTTGG
SEQ ID NO:451	5T Variant (7T)	16924813	Probe (DM)	CGCGCCGAGGGTTTTTTTAACAGGGATTTGGG
SEQ ID NO:452	5T Variant (7T)	16924814	Probe (ER24)	ACGGACGCGGAGGTTTTTTTAACAGGGATTTGGG
SEQ ID NO:453	5T Variant (7T)	16924815	Probe (ER38)	AGGCCACGGACGGTTTTTTTAACAGGGATTTGGG
SEQ ID NO:454	5T Variant (7T)	16027820	Probe (DM)	CGCGCCGAGGGTTTTTTTAACAGGGATTTGGGG
SEQ ID NO:455	5T Variant (7T)	16027821	Probe (ER24)	ACGGACGCGGAGGTTTTTTTAACAGGGATTTGGGG
SEQ ID NO:456	5T Variant (7T)	16027822	Probe (ER38)	AGGCCACGGACGGTTTTTTTAACAGGGATTTGGGG
SEQ ID NO:457	5T Variant (9T)	18312005	Probe (ER24)	ACGGACGCGGAGG9TTTTTTTTACCAGGGATTTGGGGA*
SEQ ID NO:458	5T Variant (9T)	18312006	Probe (ER38)	AGGCCACGGACGG9TTTTTTTTACCAGGGATTTGGGGA*
SEQ ID NO:459	5T Variant (9T)	16929204	Probe (DM)	CGCGCCGAGGG9TTTTTTTTAACAGGGAATTGGGGA*
SEQ ID NO:460	5T Variant (9T)	18312007	Probe (ER24)	ACGGACGCGGAGG9TTTTTTTTAACAGGGAATTGGGGA*
SEQ ID NO:461	5T Variant (9T)	18312008	Probe (ER38)	AGGCCACGGACGG9TTTTTTTTAACAGGGAATTGGGGA*
SEQ ID NO:462	5T Variant (9T)	17337201	Probe (DM)	CGCGCCGAGGGT9TTTTTTTACCAGGGATTTGGGGA*
SEQ ID NO:463	5T Variant (9T)	18312009	Probe (ER24)	ACGGACGCGGAGGT9TTTTTTTACCAGGGATTTGGGGA*
SEQ ID NO:464	5T Variant (9T)	18312010	Probe (ER38)	AGGCCACGGACGGT9TTTTTTTACCAGGGATTTGGGGA*
SEQ ID NO:465	5T Variant (9T)	17337202	Probe (DM)	CGCGCCGAGGGT9TTTTTTTAACAGGGAATTGGGGA*
SEQ ID NO:466	5T Variant (9T)	18312011	Probe (ER24)	ACGGACGCGGAGGT9TTTTTTTAACAGGGAATTGGGGA*
SEQ ID NO:467	5T Variant (9T)	18312012	Probe (ER38)	AGGCCACGGACGGT9TTTTTTTAACAGGGAATTGGGGA*
SEQ ID NO:468	5T Variant (9T)	16027823	Probe (DM)	CGCGCCGAGGGTTTTTTTTTAACAGGGATTTGGGG
SEQ ID NO:469	5T Variant (9T)	16027824	Probe (ER24)	ACGGACGCGGAGGTTTTTTTTTAACAGGGATTTGGGG
SEQ ID NO:470	5T Variant (9T)	16027825	Probe (ER38)	AGGCCACGGACGGTTTTTTTTTAACAGGGATTTGGGG
SEQ ID NO:471	5T Variant (9T)	16925101	Probe (DM)	CGCGCCGAGGGTTTATTTTTAACAGGGATTTGGGG*
SEQ ID NO:472	5T Variant (9T)	16925102	Probe (DM)	CGCGCCGAGGGTTTTATTTTAACAGGGATTTGGGG*
SEQ ID NO:473	5T Variant (9T)	16925103	Probe (DM)	CGCGCCGAGGGTTTTTATTTAACAGGGATTTGGGG*
SEQ ID NO:474	5T Variant (9T)	16925104	Probe (DM)	CGCGCCGAGGGTTTTTTATTAACAGGGATTTGGGG*
SEQ ID NO:475	5T Variant (9T)	16925105	Probe (DM)	CGCGCCGAGGGTTTTTTTATAACAGGGATTTGGGG*
SEQ ID NO:476	5T Variant (9T)	16925106	Probe (DM)	CGCGCCGAGGGTTTTTTTTAAACAGGGATTTGGGG*
SEQ ID NO:477	5T Variant (9T)	16925107	Probe (DM)	CGCGCCGAGGGTTTTTTTTTCACAGGGATTTGGGG*
SEQ ID NO:478	5T Variant (9T)	16925108	Probe (DM)	CGCGCCGAGGGTTTTTTTTTACCAGGGATTTGGGG*
SEQ ID NO:479	5T Variant (9T)	16925109	Probe (DM)	CGCGCCGAGGGTTTTTTTTTAAGAGGGATTTGGGG*
SEQ ID NO:480	5T Variant (9T)	16925110	Probe (DM)	CGCGCCGAGGGTTTTTTTTTAACCGGGATTTGGGG*
SEQ ID NO:481	5T Variant (9T)	16925111	Probe (DM)	CGCGCCGAGGGTTTTTTTTTAACAAGGATTTGGGG*
SEQ ID NO:482	5T Variant (9T)	16925112	Probe (DM)	CGCGCCGAGGGTTTTTTTTTAACAGAGATTTGGGG*
SEQ ID NO:483	5T Variant (9T)	16925113	Probe (DM)	CGCGCCGAGGGTTTTTTTTTAACAGGAATTTGGGG*
SEQ ID NO:484	5T Variant (9T)	16925114	Probe (DM)	CGCGCCGAGGGTTTTTTTTTAACAGGGCTTTGGGG*
SEQ ID NO:485	5T Variant (9T)	16925115	Probe (DM)	CGCGCCGAGGGTTTTTTTTTAACAGGGAATTGGGG*

FIGURE 4

SEQ ID NO:486	5T Variant (9T)	16925116	Probe (DM)	CGCGCCGAGGGTTTTTTTTTAACAGGGATATGGGG*
SEQ ID NO:487	5T Variant (9T)	16925117	Probe (DM)	CGCGCCGAGGGTTTTTTTTTAACAGGGATTAGGGG*
SEQ ID NO:488	5T Variant (9T)	16925118	Probe (DM)	CGCGCCGAGGGTTTTTTTTTAACAGGGATTTAGGG*
SEQ ID NO:489	5T Variant (9T)	16925119	Probe (DM)	CGCGCCGAGGGTTTTTTTTTAACAGGGATTTGAGG*
SEQ ID NO:490	5T Variant (9T)	16925120	Probe (DM)	CGCGCCGAGGGTTTTTTTTTAACAGGGATTTGGAG*
SEQ ID NO:491	5T Variant (9T)	16927101	Probe (DM)	CGCGCCGAGGG9TTTTTTTTAACAGGGATTTGGGG*
SEQ ID NO:492	5T Variant (9T)	16927102	Probe (DM)	CGCGCCGAGGGT9TTTTTTTAACAGGGATTTGGGG*
SEQ ID NO:493	5T Variant (9T)	16929201	Probe (DM)	CGCGCCGAGGG9TTTTTTTTACCAGGGATTTGGGG*
SEQ ID NO:494	5T Variant (9T)	16929203	Probe (DM)	CGCGCCGAGGG9TTTTTTTTAACAGGGAATTGGGG*

9 = 2' O-methyl modified base

FIGURE 5

SEQ ID NO		forward primer
SEQ ID NO: 394	cftr exon 3	TGGTCCCACTTTTTATTCTTTTGCAGA
SEQ ID NO: 395	cftr exon 4	AAGTCACCAAAGCAGTACAGCC
SEQ ID NO: 396	cftr exon 5	GCTGTCAAGCCGTGTTCTAGATAAA
SEQ ID NO: 397	cftr exon 7	CGGAAGGCAGCCTATGTGAGA
SEQ ID NO: 398	cftr exon 9	CATGGGCCATGTGCTTTTCAAAC
SEQ ID NO: 399	cftr exon 9-1	CATGGGCCATGTGCTTTTCAAAC
SEQ ID NO: 400	cftr exon 9-2	CTTCTTGGTACTCCTGTCCTGAAAGA
SEQ ID NO: 401	cftr exon 10	ATTATGGGAGAACTGGAGCCTTCA
SEQ ID NO: 402	cftr exon 11	GATTACATTAGAAGGAAGATGTGCCTTTCAA
SEQ ID NO: 403	cftr exon 12	TAAGGCAAATCATCTACACTAGATGACCA
SEQ ID NO: 404	cftr exon 13	TAACTGAGACCTTACACCGTTTCTCA
SEQ ID NO: 405	cftr exon 14B	ATGGGAGGAATAGGTGAAGATGTTAGAA
SEQ ID NO: 406	cftr exon 16	TCTGAATGCGTCTACTGTGATCCA
SEQ ID NO: 407	cftr exon 17A	CCTGCACAATGTGCACATGTACC
SEQ ID NO: 408	cftr exon 17B	GGACTATGGACACTTCGTGCC
SEQ ID NO: 409	cftr exon 18	GGAGAAGGAAGAGTTGGTATTATCCTGAC
SEQ ID NO: 410	cftr exon 19	GCATCAAACTAATTGTGAAATTGTCTGCC
SEQ ID NO: 411	cftr exon 19-1	GCATCAAACTAATTGTGAAATTGTCTGCC
SEQ ID NO: 412	cftr exon 19-2	GAAGGTGGAAATGCCATATTAGAGAACA
SEQ ID NO: 413	cftr exon 20	GTACCTATATGTCACAGAAGTGATCCCA
SEQ ID NO: 414	cftr exon 21	GATTAGAAAAATGTTCACAAGGGACTCCA
SEQ ID NO: 415	cftr 3849+10kb	CAGTTGACTTGTCATCTTGATTTCTGGA
SEQ ID NO: 416	cftr exon 17A-2	CCTCGACAATGTGCACATGTACC
		reverse primer
SEQ ID NO: 495	cftr exon 3	ACCTATTCACCAGATTTCGTAGTCTTTTCA
SEQ ID NO: 496	cftr exon 4	TGTACCAGCTCACTACCTAATTTATGACA
SEQ ID NO: 497	cftr exon 5	GAGCTGAGCAAGACTTAACCACTAATTAC
SEQ ID NO: 498	cftr exon 7	GTGAACATTCCTAGTATTAGCTGGCAAC
SEQ ID NO: 499	cftr exon 9	CTCCAAAAATACCTTCCAGCACTACAAA
SEQ ID NO: 500	cftr exon 9-1	GAAATTACTGAAGAAGAGGCTGTCATCAC
SEQ ID NO: 501	cftr exon 9-2	CTCCAAAAATACCTTCCAGCACTACAAA
SEQ ID NO: 502	cftr exon 10	GACTAACCGATTGAATATGGAGCCAAA
SEQ ID NO: 503	cftr exon 11	CTTAAATGTGATTCTTAACCCACTAGCCA
SEQ ID NO: 504	cftr exon 12	GAGGTAAAATGCAATCTATGATGGGACA
SEQ ID NO: 505	cftr exon 13	TAAGGGAGTCTTTTGCACAATGGAAAA
SEQ ID NO: 506	cftr exon 14B	ACCTCACCCAACTAATGGTCATCA
SEQ ID NO: 507	cftr exon 16	TAGACAGGACTTCAACCCTCAATCA
SEQ ID NO: 508	cftr exon 17A	GAGTATCGCACATTCACTGTCATACC
SEQ ID NO: 509	cftr exon 17B	AAGGTAACAGCAATGAAGAAGATGACAAA
SEQ ID NO: 510	cftr exon 18	TAATGACAGATACACAGTGACCCTCAA
SEQ ID NO: 511	cftr exon 19	GCTTCAGGCTACTGGGATTCAC
SEQ ID NO: 512	cftr exon 19-1	GTCATCTTTCTTCACGTGTGAATTCTCAA
SEQ ID NO: 513	cftr exon 19-2	GCTTCAGGCTACTGGGATTCAC
SEQ ID NO: 514	cftr exon 20	TTCTGGCTAAGTCCTTTTGCTCAC
SEQ ID NO: 515	cftr exon 21	CATTTCAGTTAGCAGCCTTACCTCA
SEQ ID NO: 516	cftr 3849+10kb	TCCTCCCTGAGAATGTTGGATCAA
SEQ ID NO: 517	Vs1 Int std F	TGATGGTGGTATGTTTTCAGGCTAGA
SEQ ID NO: 518	Vs1 Int std R	GTTCTCCCCTGTCCCAGTTTTAAC

Fig. 6

A

Mutation	Sample	IC ALLELE	MUT ALLELE	FOZ Ratio
2789+5G>A	26mix	3.94	4.69	1.19
R1162X	29	3.42	2.18	0.62
R347P	15	3.38	4.60	1.36
G85E	21	3.62	2.55	0.70
R560T	9	3.30	2.47	0.75
del1507	1	3.16	1.98	0.63
1898+1G>A	111 A2/8	6.23	2.84	0.46
R117H	30	3.46	1.87	0.54
delF508 homo MT	3	3.44	1.14	0.33
WT gDNA	03-243	3.58	1.06	0.30
Mutation	Sample	IC ALLELE	MUT ALLELE	FOZ Ratio
2184delA plasmid/internal control syn. Target	plasmid/syn. Target	4.67	3.65	0.78

B

Mutation	Sample	IC ALLELE	MUT ALLELE	FOZ Ratio
A455E	8	3.26	2.88	0.88
3659delC	14	3.38	2.36	0.68
N1303K	16	3.92	2.11	0.54
3120+1G>A	6	3.84	2.45	0.64
G551D	20	3.44	2.04	0.59
WT gDNA	03-243	3.74	1.00	0.27
I148T/Internal control	syn. target	4.35	5.08	1.17
1078delT/Internal control	syn. target	4.44	4.97	1.12

C

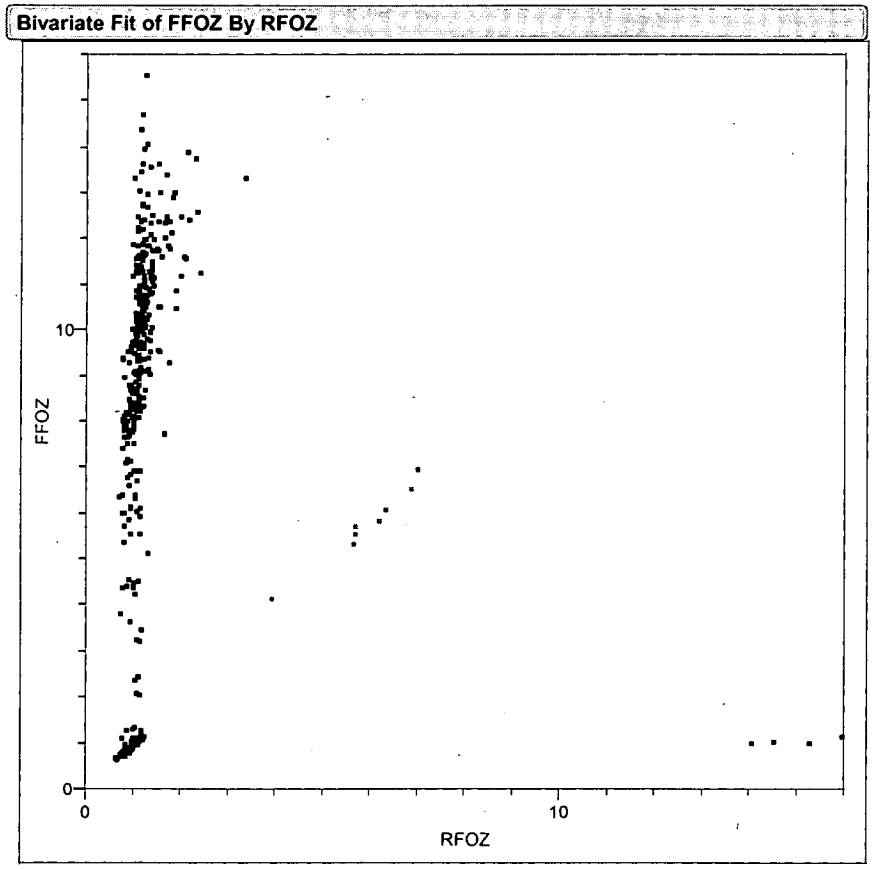
Mutation	Sample	IC ALLELE	MUT ALLELE	FOZ Ratio
711+1G>T	2	3.95	2.82	0.71
W1282X	19	4.44	2.16	0.49
1717-1G>A	28	4.87	2.19	0.45
3849+10kbC>T	5	3.82	2.48	0.65
WT gDNA	03-243	4.67	1.10	0.24

D

Mutation	Sample	IC ALLELE	MUT ALLELE	FOZ Ratio
621+1G>T	11	4.23	2.05	0.49
G542X	18	3.40	2.83	0.81
R553X	7	4.53	3.27	0.72
R334W	22	3.72	2.79	0.75
WT gDNA	03-243	4.18	1.14	0.27

FIGURE 7

All Sample Extraction Methods

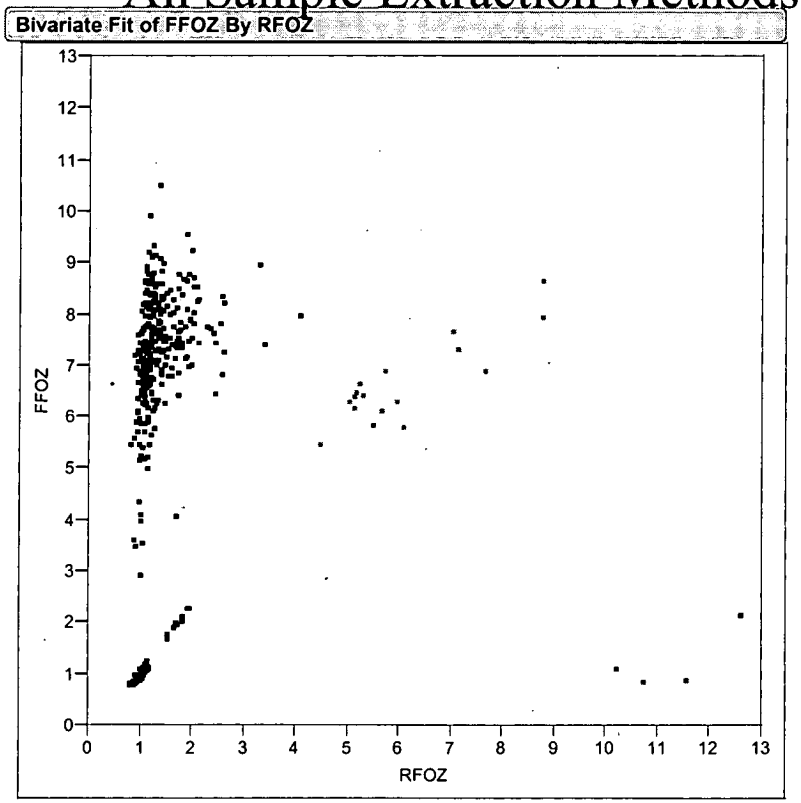


G85E

Legend

Red = synthetic Mut
Blue = synthetic WT
Green = HET
Black = WT or NTB

All Sample Extraction Methods

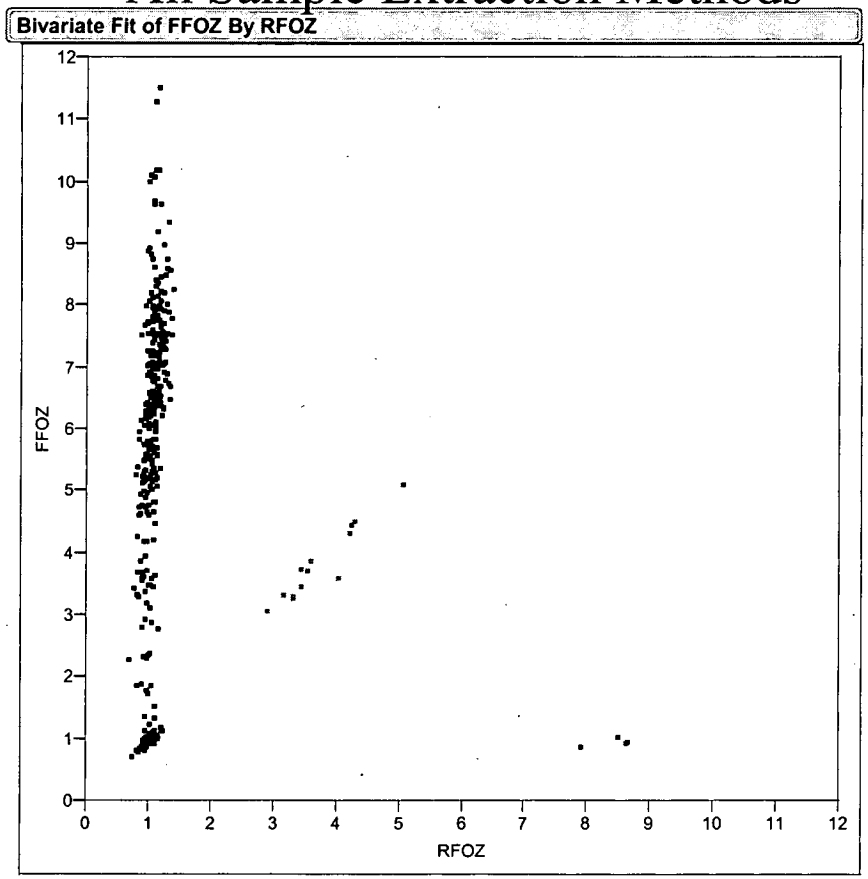


A455E

Legend

Red = synthetic Mut
Blue = synthetic WT
Green = HET
Black = WT or NTB

All Sample Extraction Methods



3659 del C

Legend

Red = synthetic Mut
Blue = synthetic WT
Green = HET
Black = WT or NTB

Figure 8

Analysis of Characterized Samples _ Range Determination

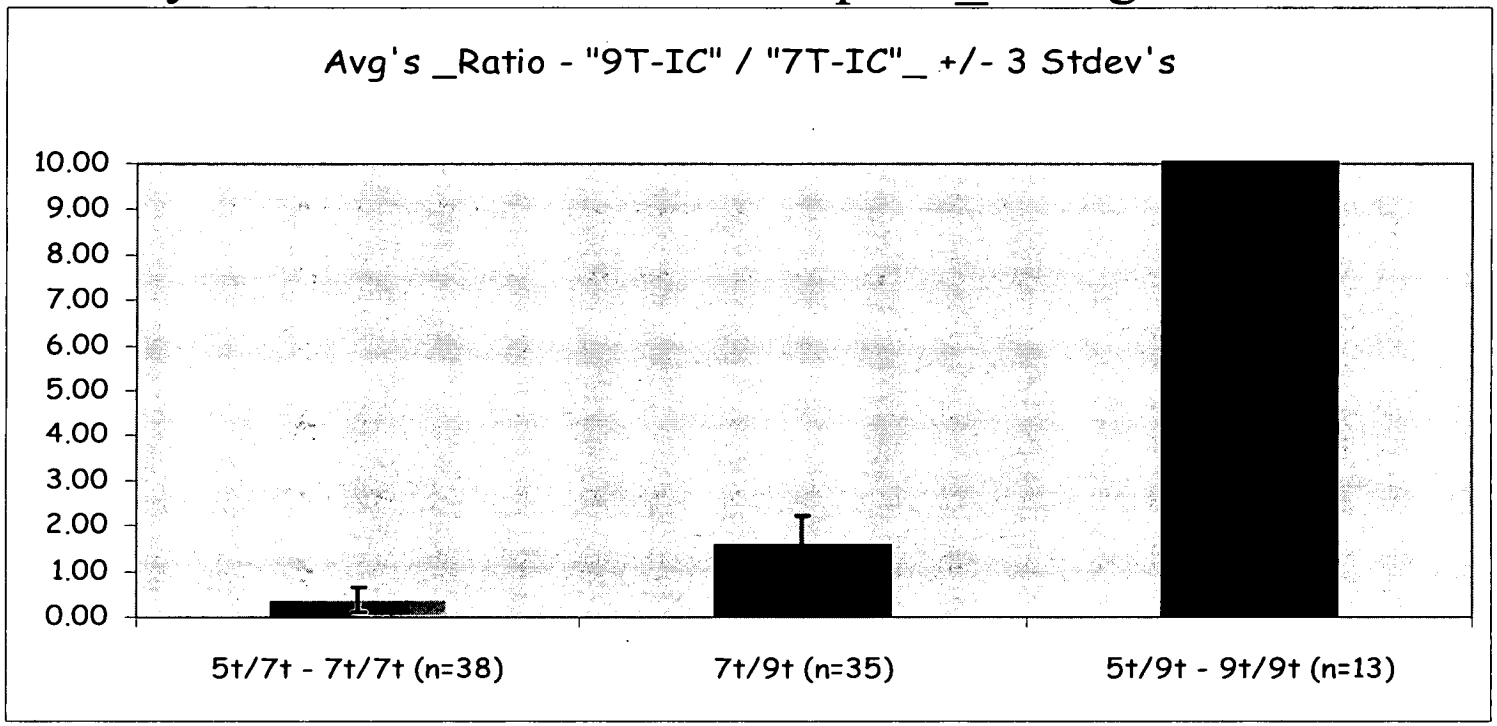
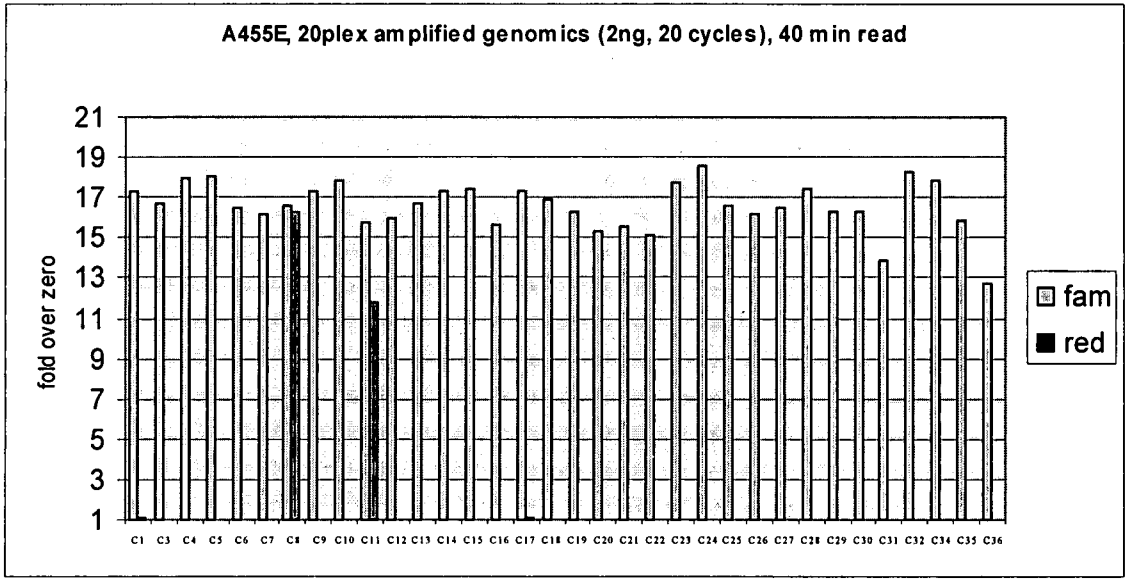


Figure 9A


A455E, 20plex amplified genomics (2ng, 20 cycles), 40 min read
fold over zero
21
19
17
15
13
11
9
7
5
3
1
C1 C3 C4 C5 C6 C7 C8 C9 C10 C11 C12 C13 C14 C15 C16 C17 C18 C19 C20 C21 C22 C23 C24 C25 C26 C27 C28 C29 C30 C31 C32 C34 C35 C36
fam
red

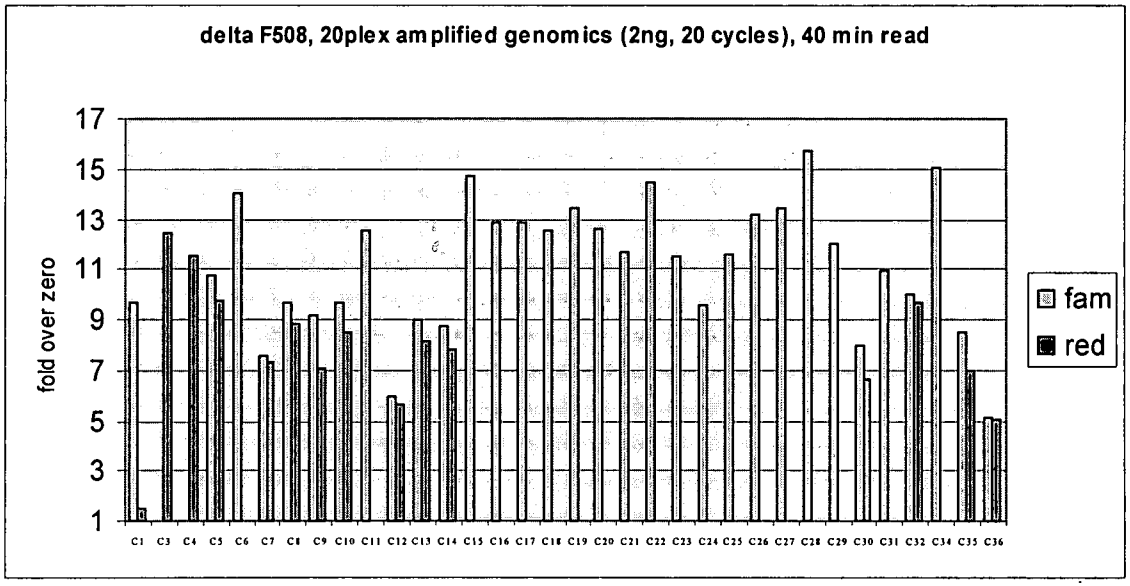

delta F508, 20plex amplified genomics (2ng, 20 cycles), 40 min read
fold over zero
17
15
13
11
9
7
5
3
1
C1 C3 C4 C5 C6 C7 C8 C9 C10 C11 C12 C13 C14 C15 C16 C17 C18 C19 C20 C21 C22 C23 C24 C25 C26 C27 C28 C29 C30 C31 C32 C34 C35 C36
fam
red

Figure 9B

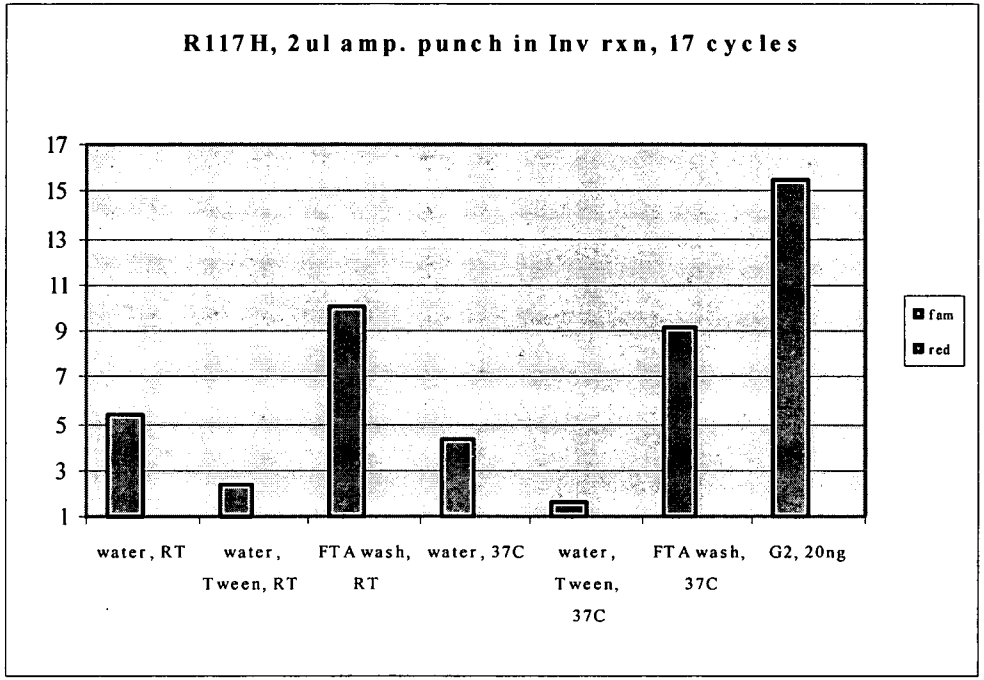

R117H, 2ul amp. punch in Inv rxn, 17 cycles
17
15
13
11
9
7
5
3
1
water, RT
water, Tween, RT
FTA wash, RT
water, 37C
water, Tween, 37C
FTA wash, 37C
G2, 20ng
fam
red

Figure 9C

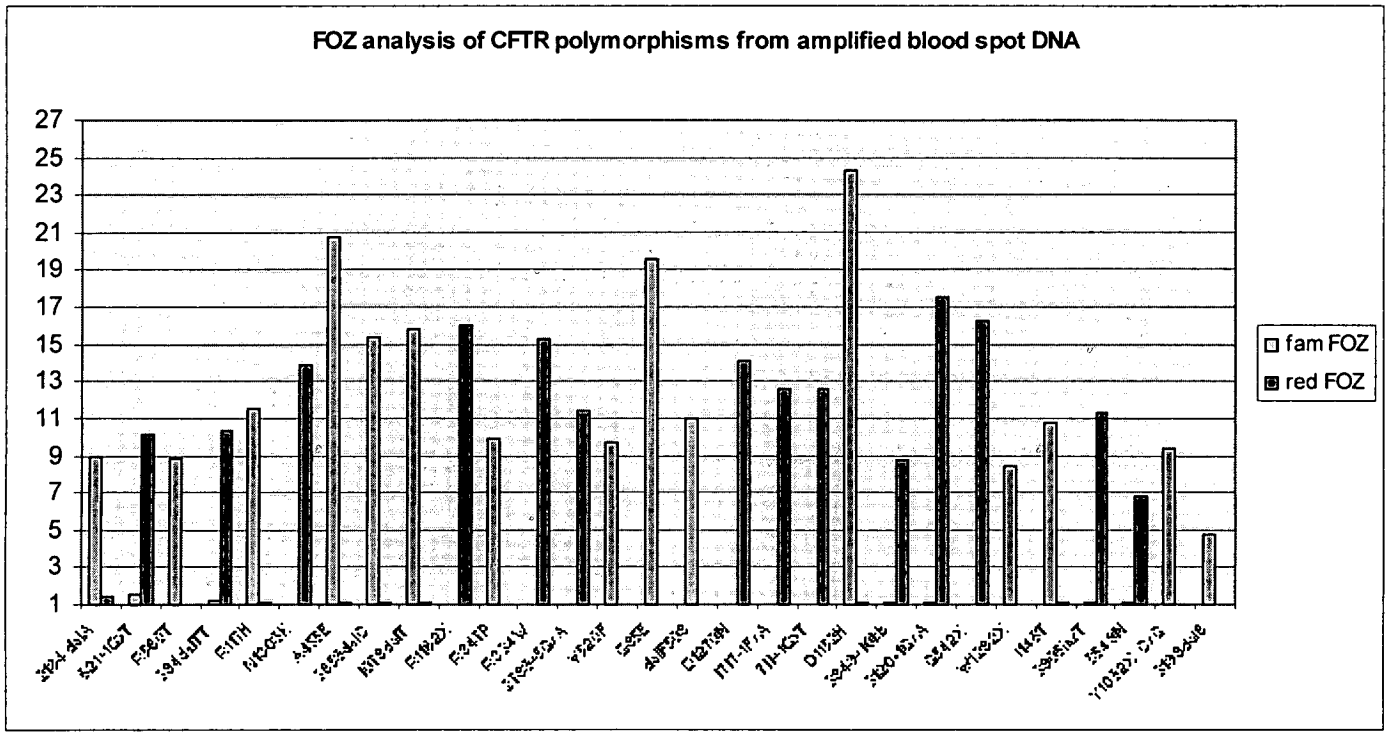
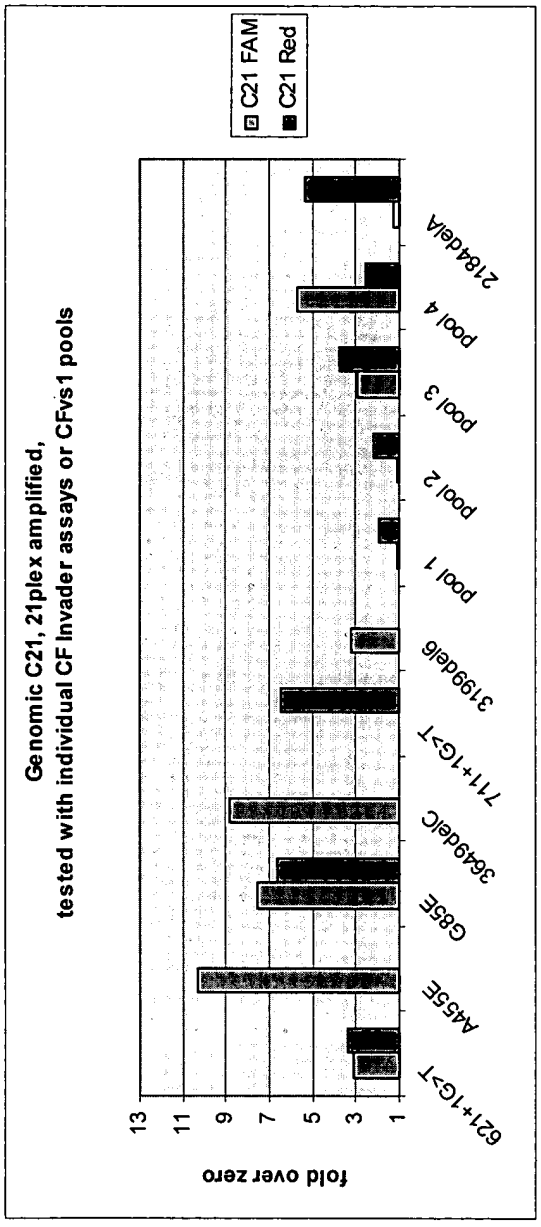

FOZ analysis of CFTR polymorphisms from amplified blood spot DNA
27
25
23
21
19
17
15
13
11
9
7
5
3
1
fam FOZ
red FOZ

Figure 9D


Genomic C21, 21plex amplified,
tested with individual CF Invader assays or CFvs1 pools
C21 FAM
C21 Red
fold over zero
13
11
9
7
5
3
1
621+1G>T
A455E
G85E
3849delC
711+1G>T
3199del6
pool 1
pool 2
pool 3
pool 4
2184delA